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JUNE 9
1952

Major General Joseph Smith, Commander, MATS
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Trends

The two leading aircraft labor unions say there was no talk of merger during the recent meeting of their top executives in Washington. UAW-CIO and IAM-AFL undoubtedly discussed their no-raiding agreement, but some observers felt they might also have considered a merger or possible affiliation of the Machinists with CIO (IAM has quit AFL twice before). Such affiliation reports have "no basis in fact," union officials say.

•

Chances are excellent that Senate will knock out the $46 billion limit on defense spending voted by the House for fiscal 1953, and may restore some of the House cuts. House-imposed reduction would, it is claimed, cost Air Force a cut in planned procurement of 3,000 planes.

•

It's now definite that illness of Air Force Chief of Staff Hoyt S. Vandenberg will prevent him from returning to duty (Trends, May 26), although Pentagon is still mum on the subject. No word yet on his successor.

•

Steel, copper and aluminum supplies are plentiful enough that materials for airport construction are in balance with demand. Lightplane makers also could probably get more materials if they wanted to increase production.

•

Four other airlines were actively in the picture when Delta reached a merger agreement with Chicago and Southern. American and Eastern had made firm bids to C&S, and TWA and National were also interested in making tie-ups. Delta-C&S deal will get expedited handling by CAB.

•

There won't be a second try by Northwest Airlines' management to get a favorable stockholders' vote on agreement to merge with Capital. Following defeat of merger at its annual meeting, NWA has terminated the proposed agreement. This means an entirely new deal would have to be worked out, and such action is said to be unlikely in the near future. Incidentally, votes that defeated the merger are reported to have been cast by two large NWA shareholders in New York.

•

Senate Interstate and Foreign Commerce Committee has shown considerable interest in CAB Chairman Donald Nyrop's proposal to provide government funds to foster development of a U. S. jet transport. Committee has asked Aircraft Industries Association to supply it with industry's views on the plan.

•

Deal isn't final yet, but Continental Air Lines is negotiating to sell its five Convair 240's to Canadian Pacific Airlines when CAL's seven 340's are delivered later this year and in 1953.

The Washington View

Avgas Comes Back

Although the nation's airlines have no great love for the Petroleum Administration for Defense, a government agency which thus far has only issued orders which caused numerous headaches to the air carriers, they do feel grateful to PAD for lifting its restrictions on the use of aviation gasoline at a critical time.

Three weeks after its first order cutting avgas usage by 30%, PAD liberalized the restriction, making the cut only 22%. At the same time it extended the order for two additional weeks, making a total of six weeks in all.

But the slight easing had been in effect only a few days when PAD took another look at the situation. It noted that 90% of the U. S. avgas refining capacity was back in production. It saw that several carriers faced severe cuts in flight schedules despite the recent easing. It heard that the Post Office Department was considering an embargo on trans-Atlantic air parcel post. It was told of the hundreds of potential trans-Atlantic air tourists who were jamming New York because their flights had been cancelled. It realized the financial hardship that the continuation of avgas restrictions would cause U. S. and foreign airlines.

Taking all these factors into account, PAD Administrator Oscar Chapman acted promptly and removed all restrictions. He warned, however, that the U. S. avgas supply would continue to be tight "for some time to come," and added that, "We cannot ever make up the production that was lost during the strikes." As a result, Chapman said, PAD would have to continue its order putting a floor on the amount of tetraethyl lead in avgas "for some indefinite time in the future."

Our Forgetful Congressmen

One would think that the nation's lawmakers, who year in and year out appropriate billions of dollars for the construction of military aircraft, would have a vague idea of some of the problems connected with production. Time and again, however, Defense Secretary Lovett, USAF Secretary Finletter, Munitions Board Chairman Small and others have had to troop up to Capital Hill to explain to one Congressional group or another that it takes time to get airplanes built.

Every so often one senator or representative will point out to a defense official that "two (or three or four) years ago we appropriated so many billions for military aircraft procurement" and follow up with the question, "We don't see the planes. What happened?"

At this point Lovett or whoever is testifying will go into the now-familiar statement about aircraft lead times, the complexity of new equipment, design changes, machine tool shortages, and the numerous other factors which prevent an airplane ordered by the Navy or Air Force today from taking to the air tomorrow.

During World War II, the late William S. Knudsen was frequently asked why plane production could not be speeded up by putting more men on the project. Knudsen's reply was an analogy on childbirth. "No matter how many men you put on the job, it still takes nine months to produce a baby."

With this as a background, the casual Capital Hill observer would think that some of this testimony would rub off on some of the nation's legislators. On Wisconsin's Republican representative Alvin E. O'Konski, for instance.

O'Konski is a recent tirade against Kaiser-Frazer Corp. on the floor of the House, started a discussion of the Chase C-123 assault transport, which K-F is to build at Willow Run. Said O'Konski, "In spite of the fact that Kaiser-Frazer has had the contract for a year, not a single such plane has been produced. That is tragic indeed."

Aircraft industry observers would like O'Konski to point out previous instances where a plane the size of the C-123 was produced within a year after a contract was awarded.

Many legislators, of course, take an avid interest in aviation activities, both those concerning plane building and airline operations. But there are far too many who know next to nothing about aircraft construction and operating problems.

Russian Jet Output

Comparisons between U. S. and Soviet air power are continually in the news but the real facts are generally obscured. The real information is to be found in U. S. secret intelligence reports, but bits of data are occasionally revealed. The past fortnight saw the release of two unrelated but enlightening pieces of information.

Speaker Sam Reyburn (D., Tex.) did not disclose his sources but declared in a House speech that Russia is tripling its production of intercontinental bombers. Former DPA Administrator Manly Fleischmann said at his farewell press conference that the U. S. will match and outstrip Russian jet plane production early in 1953, adding he was basing his statement on intelligence reports.

Rayburn did not elaborate on the Russian intercontinental bomber, but some sources estimate about 10-20 will be flying by the end of the year. It is presumably the TuG-75, a swept-wing, turboprop-powered, six-engine craft reportedly with a speed of 470 miles per hour and a 6,500 mile range.

. . . Robert M. Loebelson

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Cover Photo

MAJOR GENERAL JOSEPH SMITH is at the helm of the Military Air Transport Service as it enters its fifth year of operation as the joint transport service of the U. S. Air Force and Navy. Smith started his military career at West Point, graduating in 1923 as second lieutenant in the cavalry. He entered the Army Air Corps in 1927, getting his flight training at Brooks Field, Texas. In about as varied a career as the military services can arrange, he served in the Philippines in the late 20's, flew as an air mail pilot out of Salt Lake City in 1934, and served with the Ninth Bombing Squadron in 1937, among many other assignments.

In top-level Air Force activities during the second World War, Smith was made brigadier general in 1944 while serving as chief of the Third Air Force. In September of 1949 he was promoted to his present rank. One of the original planners of the Berlin Air Lift, during which time he was commandant of the USAF in Europe, Smith was appointed commander of MATS in November, 1951, succeeding Lt. General Laurence Kuter, who had headed the MATS organization from its founding to that time.

other publications

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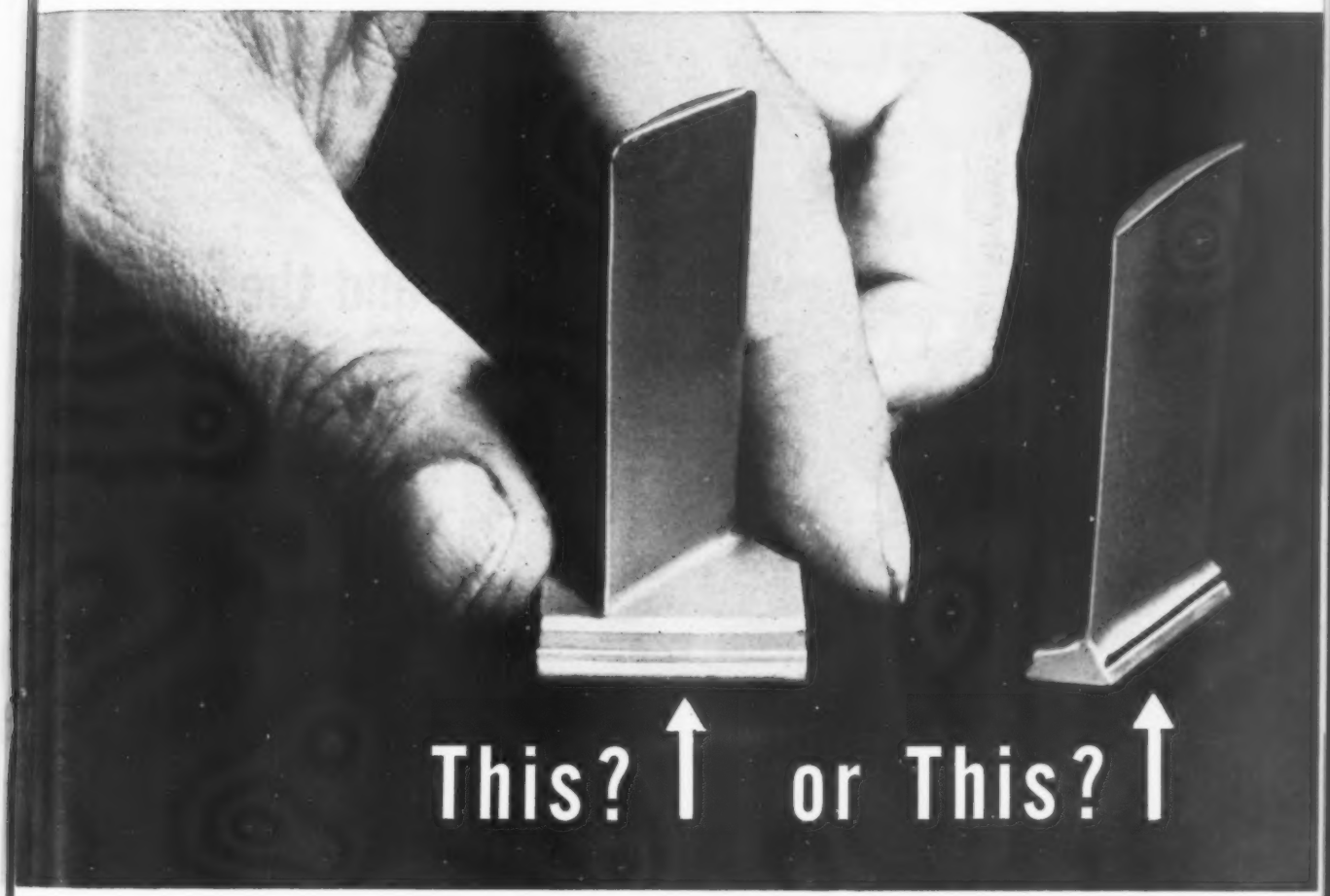
Which One Will Save a Million Dollars?



Three years in the making, the fabricated jet engine compressor stator blade (left) promises to save the armed forces not just one million, but millions of dollars annually in jet engine costs, compared with the forged blade (right). This new G-E development will cut manufacturing cost in half and save over a third in critical materials. Military approval has been received for the use of fabricated blades in the General Electric J47-GE-23 which powers the Boeing B-47 Stratojet bomber. And G.E., through the United States Air Force, is sharing the process with other turbojet manufacturers.

The blades are rolled in long strips, contoured to the proper air foil, and cut to desired length. Each blade is then welded into a separate base which fills the same area as the "blade ring" used with forged blades. Thus the ring and an expensive manufacturing and assembly process have been eliminated.

Endurance tests on two engines equipped with the fabricated blades proved them just as efficient as forged blades. The base provides greater resistance to vibration due to uneven airflow through the compressor. Damage caused by foreign objects entering the compressor is minimized because the new blade is fastened much more strongly to the casing.

A product of G-E research at the Thomson Laboratory in Lynn, Mass., this new method of manufacturing stator blades is another of the many ways in which G.E.'s constant pioneering contributes to the advancement of aviation. General Electric, Schenectady 5, N.Y.

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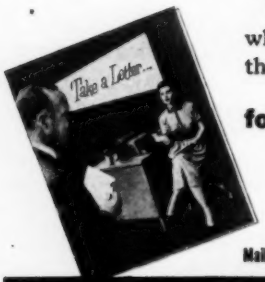

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June 9-21—International Organization for Standardization, Triennial Meeting, Columbia University, New York.

June 10—National Fire Protection Association, Special Aviation Seminar, Statler Hotel, New York.

June 15-19—American Society of Automotive Engineers, semi-annual meeting, Sheraton Gibson Hotel, Cincinnati, Ohio.

June 16-17—Aviation Distributors and Manufacturers Assn., Mid-Year Meeting, Grand Hotel, Mackinac Island, Mich.

June 17-19—Aircraft Trade Shows, Inc., 1st Annual Exhibition of Aircraft Parts & Equipment, Sheraton Hotel, New York.

June 19-21—American Society of Mechanical Engineers, Applied Mechanics Division, Shock & Vibration Instrumentation Symposium, Pennsylvania State College.

June 23-27—American Society for Testing Materials, 50th Anniversary Meeting, Statler and New Yorker Hotels, New York.

June 24-26—Ignition & Engine Analyzer Conference, sponsored by Scintilla Magneto Div., Bendix Aviation Corp., Lake Oquaga, Sidney, N. Y.

June 26-28—Institute of Navigation, Annual Meeting, Sir Francis Drake Hotel, San Francisco, Calif.

July 4-9—All Women's Transcontinental Air Race, Santa Ana, Calif., to Teterboro, N. J.

July 8-12—Aviation Writers Association, Annual Convention, Ambassador Hotel, Los Angeles.

July 10-12—National Assn. of State Aviation Officials, Summer Board Meeting, Alpine Rose Lodge, Salt Lake City, Utah.

International

June 18—IATA, 23rd Executive Committee, Brussels.

July..—International Soaring Championships, Madrid, Spain.

Aug. 19—ICAO, Aeronautical Information Services (AIS), 1st Session, Montreal.

Aug. 20-28—8th Int'l Congress on Theoretical & Applied Mechanics, Istanbul.

Sept. 2-5—Society of British Aircraft Constructors, Annual Display, Farnborough, England.

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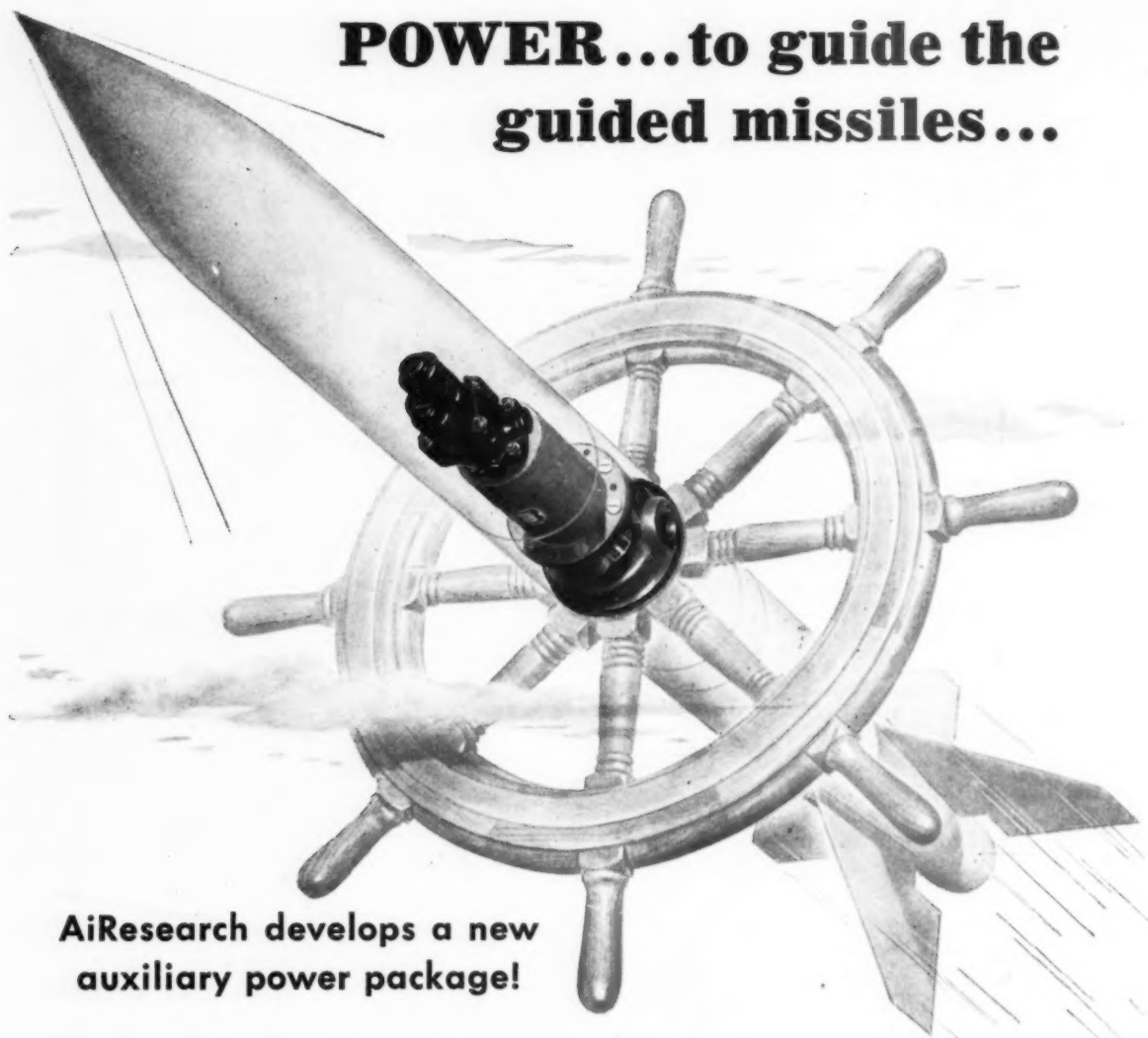

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Letters

MAGNUM OPUS

To The Editor:

I have just received a copy of your magnum opus, the April 28 "Annual Air Transport Progress Issue" of AMERICAN AVIATION.

I hasten to send you most sincere congratulations on a magnificent job of work which for wealth of air transport information has never been rivalled nor more clearly presented. Comparative statistical data of the sort that your special issue contains is of tremendous value to the whole air transport industry throughout the world. It both sets standards and potentialities.

Congratulations to you with all your staff on a major contribution to knowledge about the business.

PETER G. MASEFIELD
Chief Executive
British European Airways
London

VAST AMOUNT

To The Editor:

I have just had an opportunity to go through the AMERICAN AVIATION "Annual" and I want to offer my compliments on the vast amount of information which you condensed so well. I know full well the amount of work and effort that was put into it by your staff. Congratulations are in order.

HAROLD CRARY
Vice President-Sales
United Air Lines

THOROUGH

To The Editor:

It has been a long time since I have written a fan letter but your May 12 issue deserves all the bouquets it can get.

Your editorial, in answer to Mr. Bolles' letter, is so completely clear and thorough in its handling that I got a real kick out of it.

It ought to be required reading for newspaper editors and even some aviation feature writers whom I have observed over the past years. In my work AMERICAN AVIATION continues to be a "must" and it is just careful thought-provoking work like this that makes reading every issue a pleasure.

NORMAN M. BANKART
N. W. Ayer & Son, Inc.
Chicago, Ill.

OVERWHELMING

To The Editor:

I have read your editorial in the May 12, 1952, issue of AMERICAN AVIATION in reply to the letter addressed to you by Mr. Blair Bolles. I could not but decide to write you this letter to express my sincere congratulations for the manner in which you have taken Mr. Bolles to task and for taking up the cudgels on behalf of commercial scheduled air transportation.

The manner in which you have refuted Mr. Bolles' contentions point by point is indeed overwhelming and factual. My only regret is that your editorial may not reach the general public who would read Mr. Bolles' book, so that the facts as brought out in your editorial may serve to counteract whatever impression Mr. Bolles' book has left in their minds.

Anyway, I wish to reiterate my congratulations for your invaluable contribution to the progress of commercial aviation.

RAFAEL YGOA
Treasurer-Comptroller
Philippine Air Lines, Inc.
Manila

HARSH WORDS

To The Editor:

Congratulations on "Round Two"! (AMERICAN AVIATION, May 12)

Them's harsh words, but why pussyfoot around about the fact that Bolles is a liar. Would like to see this editorial printed in every newspaper in the country. (Also that some of your nonsked supporting competitors would take note.)

ROY R. ROADCAP
World Airline Record
Chicago, Ill.

RESPONSE

To The Editor:

I wish to take this opportunity to thank you on behalf of Pacific Airmotive Corporation for the recent article on the de Havilland Dove which appeared in your magazine, AMERICAN AVIATION.

We have had numerous calls and letters in response to your article. A great number of people have mentioned that they thought it was one of the most factual articles they have ever read.

M. A. ("DUTCH") BARBETTINI
Sales Manager-Eastern Region
Pacific Airmotive Corporation
Linden, New Jersey

FUELING FIRE

To The Editor:

I noted with interest a statement in the Extra Section in the May 12 issue of AMERICAN AVIATION concerning a gasoline fire which substantially damaged a Constellation aircraft, reported as being due to static discharge.

In the event this article referred to a fire which occurred at Idlewild Airport on a TWA Constellation, April 21, 1952, your source of information as to the circumstances was inaccurate. I therefor would like to take this occasion to pass along to you the following description of this unfortunate accident.

The aircraft was being fueled by personnel and equipment of a fuel service contractor. No TWA personnel were in the vicinity. A leak developing in the servicing hose in the vicinity of the hose reel compartment of the F-1 servicing truck sprayed gasoline on the pump engine which immediately ignited and enveloped the hose reel compartment in flames. Before the truck could be moved, fire had gained access to the cabin interior through the lower left side of the fuselage.

At the investigation following the accident it was proven that all grounding equipment was in good condition and that truck to ground, aircraft to ground, and truck to aircraft ground connections had been properly made prior to the fire.

R. M. DUNN
Director, Engineering & Maintenance
Trans World Airlines, Inc.
Kansas City 5, Mo.

BOSTON'S CHAPEL

To The Editor:

Without the slightest thought of continuing a controversy, here is a bit of information on the "world's first airport chapel" at Logan International Airport—just to keep the record straight.

Responsible authorities here say that the church at Shannon is but a private chapel where the Catholic clergy may say Mass while enroute. The chapel at Logan was erected as a place of public worship. Apparently, this is where the difference lies.

Although I have visited Shannon many times—never did I observe or hear of the chapel at that skyport.

ART RILEY
The Boston Globe
Boston 7, Mass.

SECOND OR THIRD

To The Editor:

I have read the various articles as to our claim that we had the world's first chapel at any airport. Now, we must certainly take second or third or fourth place as to the location of the chapel on the airport but I think we still are in first place with the only chapel on any airport located in the main passenger terminal building which may be reached directly from other parts of the building.

ALBERT L. EDSON
Airport Manager
Logan International Airport
Boston, Mass.

LATE 'NEWS'

To The Editor:

With reference to your article regarding a speech by W. H. Oswalt, City Manager of Midland, Texas, in your column "Airport News Digest" in the issue of May 12, he did leave out a few things.

His comments were almost a direct quote from CAA Newsletter, Vol. II No. 1, January 1, 1942. And I do mean 1942.

C. R. BULLOCK
CAA Agent
Dallas, Texas

Editorial

15th Milestone

FIFTEEN years ago on June 1, 1937, the first issue of this magazine made its appearance virtually without any advance announcements or solicitations. Edited in two tiny rooms in a Washington office buildings, its only tangible assets were a few third-hand desks and chairs, second-hand typewriters, and an abundance of hope and faith in the future of the aviation industry.

by W. W. P.

The Post Office had complete control of the nation's air transport system and was using it for all its political worth. Government regulation of civil aviation was charged to the Bureau of Air Commerce of the Department of Commerce. The nation's air strength was centered in the Army Air Corps and the fledgling Navy Bureau of Aeronautics. The Interstate Commerce Commission had obtained a small foothold in regulation of air transport. Trans-Atlantic and other over-ocean flying was unknown except by intrepid pilots pioneering the future airways of commerce.

These fifteen years have witnessed a tremendous growth in aviation and the flowering of a great new form of transportation around the world. The science of aeronautics has expanded beyond the dreams of the pioneers. American Aviation Publications has endeavoured to keep pace with this tremendous upsurge of activity and has, itself, continued to expand its services to meet these new requirements. On January 3, 1939, *American Aviation Daily* was launched. In 1940 came *American Aviation Directory*. Three years later *Official Airline Guide* got its start, and in 1950 *American Aviation Traffic News* was started.

We are proud of our 15th anniversary and prouder still to have been a part of the great aviation industry during this period of expansion. We look forward to the next fifteen years with as much keen enthusiasm and as much optimism as we did in May, 1937, when those two tiny rooms were rented and the first stories were pounded out for the first issue. It is good to know that aviation is still remote from its ultimate future. We hope to continue aiding constructively in its expansion and development for a long time to come.

Tourist Service

WE HAVE JUST returned from an air tourist trip to Europe with some observations about the new high-density, low-fare service being offered for the first time since May 1. The trip was made on TWA, which has 58-passenger Constellations in tourist service, but the comments are applicable to all of the high-density services regardless of airline or type of plane.

The $225 saving on a round-trip ticket from the regular fare service during the summer season is very considerable—$522 versus $747 from New York to Paris. It is sufficient to attract a great many new passengers, and one can only commend any and every move made to put fares at the lowest possible economic level.

Yet it seems to us that the trans-Atlantic carriers have not yet found the formula for providing a popular tourist service comparable to the tourist services offered by the steamship companies.

In a general sense it can be said that any form of transportation which requires passengers to sit in a seat all night is something less than first-class. To this extent only deluxe all-sleeper service is first class in the air and the regular air service, regardless of its trimmings, is still second or third class so long as passengers sleep in their clothes in seats. Far from this being a detraction, the airlines have nothing to apologize for—the airlines have speed, and an overnight trip to Europe is far preferable to a week on a boat to the average traveler under any conditions.

But in going to the high-density type of seating requiring five seats across—2 and 3—it seems to us that the airlines may have gone to an extreme which will disappoint typical tourists who want bargains but don't want steerage. There is one standard fare for every seat in the airplane, yet there is a great variation in the desirability of certain seats. In steamships you pay less if your accommodations are near the engine room; in the airplane the single man in the center seat of a triplet pays the same fare as the man who is traveling with relatively more comfort with his wife in a pair of seats on the other side of the aisle.

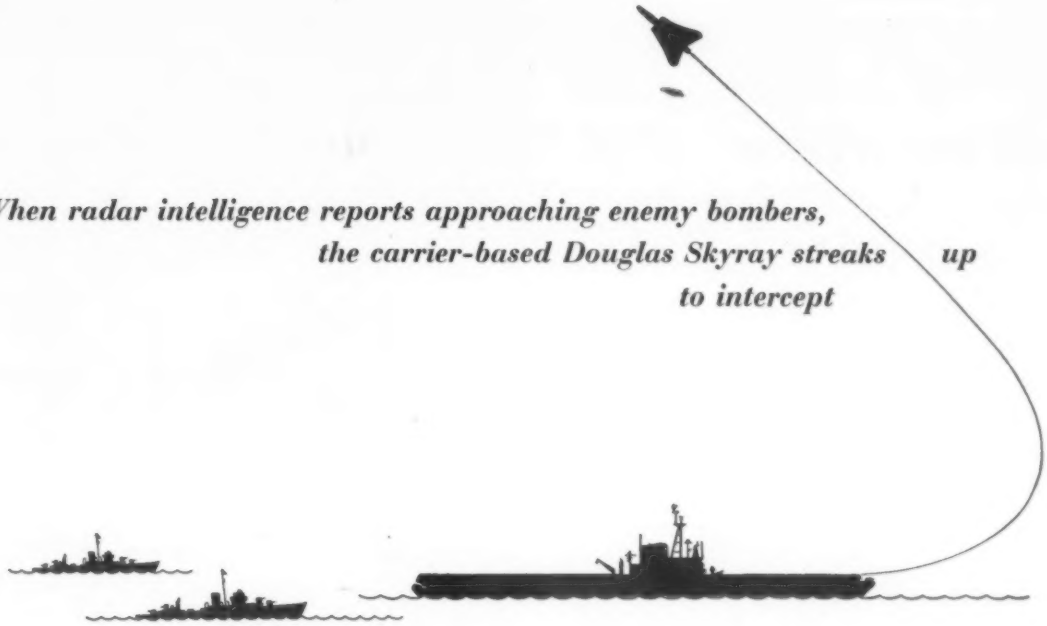
A Long Time

A trans-Atlantic trip varies from 16 to 20 hours. That's a long time, especially when an entire night is encompassed. High-density seating leaves no room for movement of any kind. Sleep is possible in some seats, quite difficult in others. True, the trip takes less than 20 hours—but there are many tourists who will consider the trans-Atlantic low-fare service to be coach service, not tourist service—thinking of the ever-better tourist class service in steamships.

A *coach* service over the Atlantic would not be out of line providing the passengers fully understood the circumstances. Except for snacks, meal service should be on the ground at Gander and Shannon. An extra half-hour on the ground should be added for shaving and cleaning up. But for true *tourist* service, the rows of three adjoining seats should be eliminated. The seats are much too small for hefty people. When many passengers are smoking there is inadequate ventilation. Too many passengers are packed into too small a space for comfort.

There was a great deal of ballyhoo about the new tourist service eliminating frills. Yet for $4.00 (other lines have similar arrangements) the tourist passenger gets standard meals worth much more than the four dollars. The meals occupy more space and weight that did the meals for the regular service since there are more passengers. The trip takes the

(Please turn to page 59)



When radar intelligence reports approaching enemy bombers, the carrier-based Douglas Skyray streaks up to intercept

New jet interceptor—the Douglas Skyray

A new concept in fighter planes, the Douglas F4D Skyray—when operating from carriers—will let fleet units move deep into enemy waters, protected against sudden attack. When shipboard radar shows enemy bombers approaching, the Douglas Skyray streaks up and hovers—to keep them from hitting vital targets. On spotting the enemy, Skyray slashes down at terrific speed—spitting a stream of bullets, and rockets. Yet, despite its tremendous speed, Skyray's radical swept-back wings can bring it in *slow*, for easier landings on aircraft carriers.

The outstanding performance characteristics of the F4D Skyray are another example of Douglas leadership in the many phases of aviation. Designing airplanes for quantity production to *fly farther and faster with bigger payloads* is a basic concept with Douglas.

Depend on *DOUGLAS* **First in Aviation**

What every pilot should know about MICRONS

(Psst! What you don't know can hurt you!)

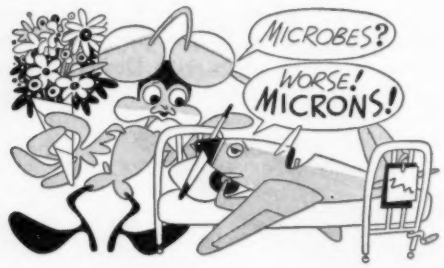
"And what," you ask, "is a *micron*?"

Answer: "Micron" has *two* definitions, and you'll want to know them both—the first to impress your friends, the second to keep out of trouble. Here they are:

1—A micron is a *measurement of length*. Just remember that 25,400 microns equal one inch . . . and then take it from there. From now on, in your hangar-flying sessions, don't just say "mile" when you can say "1,609,344,000 microns." The boys will be amazed.

2—A micron, chemically speaking, is a particle having a diameter of .000039 inch. Engine manufacturers warn that particles larger than 10 microns in diameter can be injurious to your engine. Four particles of this 10-micron size would have to get together before you could even see them with your naked eye, even if your latest CAA physical shows that you have 20-20 vision.

But when these invisible particles get into your engine —watch out! They can cause damage or undue wear. They could even cause engine failure and a forced landing.



How do they get in?

They get into your engine with the gasoline—regardless of the brand you use. No matter how carefully it's transported from refinery to airport, gasoline can't help picking up airborne dust particles, including sand and rust.

How to trap the little rascals

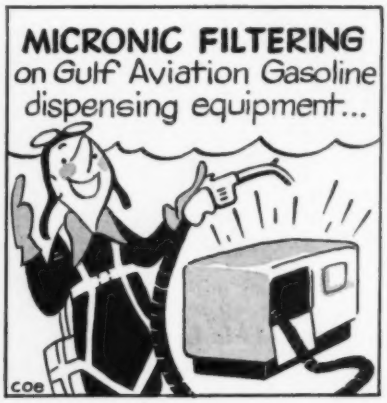
How can you trap these particles—keep them out of your engine? Not with fine mesh screens. And certainly not with ordinary filters. The *only* solution is to force the gasoline through specially designed filters—just ahead of the gasoline hose—before it goes into your tank.

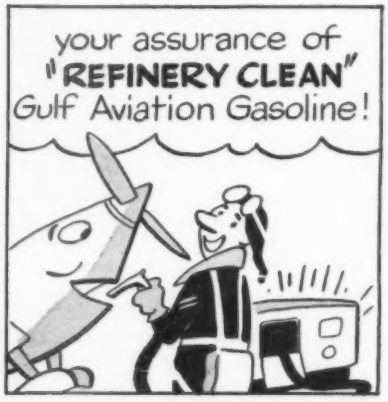
So that's exactly what Gulf is doing for you. Gulf has installed filters on its Aviation Gasoline dispensing equipment, designed to completely remove all particles 10 microns in size or larger. From now on, for the sake of your engine and your own safety, go GULF . . . get gasoline that's *refinery clean*.

Gulf Oil Corporation . . .

Gulf Refining Company

GULF
AVIATION PRODUCTS





TWO CLOSE-UP VIEWS of the 750-gallon wing tanks installed on three of SAC's C-97 Stratofreighters are provided here.

Boeing's Wing Tanks

BOEING Airplane Company's approach to the problem of getting more fuel on board its large aircraft, transports and bombers alike, is reflected in these photos showing auxiliary fuel tank installations on the Boeing C-97 Stratofreighter, B-50, and B-47 Stratojet.

Unlike the Lockheed designs (AMERICAN AVIATION, April 14), Boeing chooses to mount the tanks on struts extending below the wing. This is the same type installation used by Boeing for its jet engine installations in the B-47 Stratojet and in the company's commercial jet transport proposals. Ease of installation and removal of strut-mounted units is cited as a major reason for this type of arrangement.

The C-97 Stratofreighter shown in these photos is one of three similar headquarters staff transports used by the Strategic Air Command and believed to be the only C-97's so equipped. The tanks are the 750-gallon tanks of the B-50.

BOEING B-50 was first of series to get underslung tanks.

RELATIVE SIZE of the 750-gallon tanks is apparent here.

LARGEST TANK of its type on the B-47B Stratojet.

New B.F.Goodrich tire is first to meet 250 mph landing test

LANDING PLANES at 250 mph speeds will put a terrific strain on the tires. The planes are heavy. The tires must be small to retract into limited space.

B. F. Goodrich set out to design a tire which could meet the *complete* specifications set up by Air Research and Development Command at Wright Air Development Center. The goal of 50 stops at 250 mph on a dynamometer is the toughest ever set for airplane tires. Today's standard tires could not do it. Yet the new B. F. Goodrich tire passed the laboratory test—was still good for even more landings.

After that, the same test tire went on to pass load capacity dynamometer tests at low speeds. Cut apart for a post-mortem, this tire revealed no sign of failure. As a result of passing these tests and meeting all other requirements, the tire won official approval for military production.

New techniques developed for this tire are typical of other B. F. Goodrich tire engineering accomplishments. For example, the first low pressure airplane tire was a B. F. Goodrich development. And the first high pressure tires were built by B. F. Goodrich.

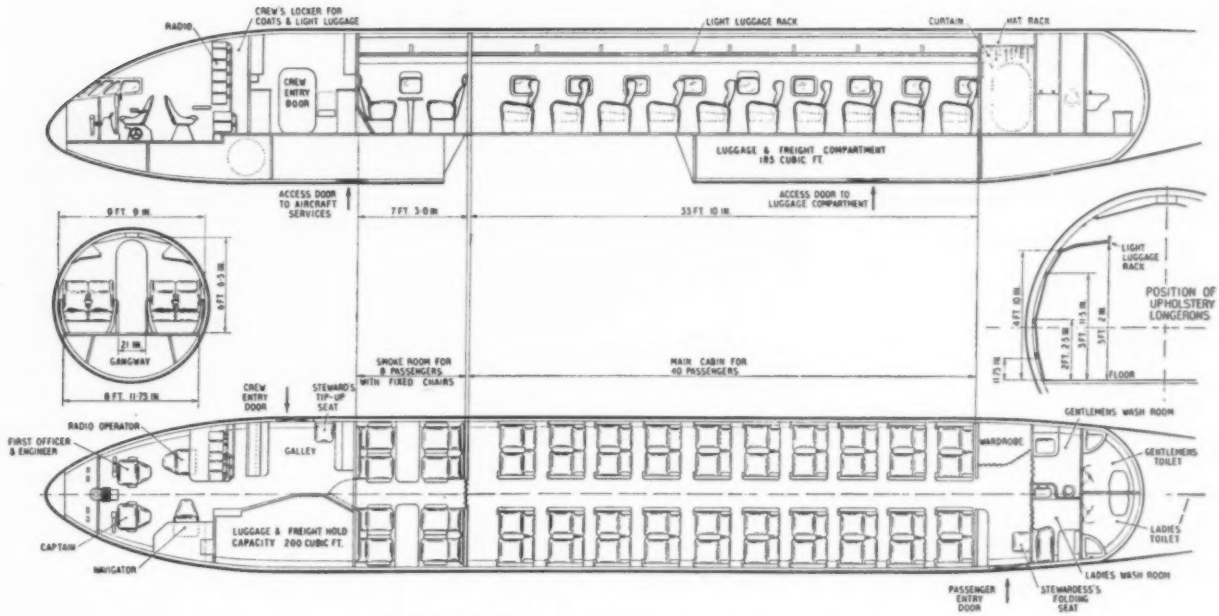
Along with this latest accomplishment, BFG engineers have brought new improvements to their complete line of airline, military and light plane tires. For complete information on tires, brake and wheel assemblies, De-Icers, heated rubber, inflatable seals, and other B. F. Goodrich products for aviation, write *The B. F. Goodrich Company, Aeronautical Division, Akron, Ohio.*

B.F.Goodrich
FIRST IN RUBBER

ESTABLISHED JUNE 1, 1937

American Aviation

VOLUME 16, NO. 1



FIRST VIEW of 48-passenger Comet II interior.

A Low Cost Comet is Coming, Figures Reveal

Comet II seen as real threat to U. S. lines, as direct operating cost matches that of DC-6B.

By James J. Haggerty, Jr.

THE FIRST FLIGHT of the de Havilland Comet I in scheduled airline service on British Overseas Airways Corp.'s London-Johannesburg route last month aroused considerable interest throughout the U. S. among laymen, but it did little to frighten American transport manufacturers. The Comet I, they reasoned, is not the airplane which will break American dominance in the transport manufacturing field; with its low passenger capacity, relatively low block speed, and comparatively high operating cost, only government-subsidized airlines, such as the five which have ordered it, can afford to operate it.

But what about the Comet II, a much improved 115,000 pound version, faster, longer-ranging, more economical, with greater payload—a plane which has been flying for more than four months and which is expected to be in scheduled service by 1954? It is here that America's manufacturers may meet the real challenge to their supremacy, and long before they had anticipated.

Little attention has been paid to the Series I Comet to date, largely because little information about it has filtered into this country. American Aviation has obtained exclusive details of the Avon-powered Comet II, and if the plane can match the performance estimates of de Havilland, a company which has never been sensational in its claims, the Comet II may be the jet transport which will find its way into service on American flag routes.

Forecast

Here is what de Havilland is forecasting for the Comet II:

• **Direct operating cost** comparable to that of the latest U. S. piston-powered transports.

• **Block speed** 170 miles per hour faster than any competitive airplane now in service.

• **One thousand gallons** more fuel than the Comet I; aircraft can fly from London to Newfoundland or San Francisco to Honolulu, even with greater than normal headwinds.

• **Payload** up to 14,000 pounds.

The company estimates that the direct operating cost of the Comet II on world routes will be about 13½ cents per short-ton-mile. This compares with the operating cost of a Douglas DC-6B on overseas routes of about 14 cents per ton-mile and about 10 cents per ton-mile domestically. On the North Atlantic route, where there is a slight reduction in fuel costs, de Havilland estimates a lower direct operating cost. These estimates are based on the following assumptions:

Typical stage length, 2,000 miles with 230 miles diversion.

Stage speed, 440 mph with 10 mins. terminal time.

Trip time, 4.55 hours.

Fuel consumption, 820 gals. (Imp.) per hour.

Fuel cost, 17½¢ per gal. (U. S.)

Payload, 14,000 pounds.

Initial aircraft cost, $1,442,000.
Utilization, 3,000 hours per year.
Obsolescence period, 8 years (airframe and engines).
Residual values, 20%.

Using these factors as a basis (employing the Society of British Aircraft Constructors' "Standard Method for the Estimation of Direct Operating Cost of Aircraft"), the following hourly costs result:

	Cost per aircraft flying hour
Obsolescence	$ 57.96
Insurance	30.52
Airframe maintenance and overhaul	48.16
Engine maintenance and overhaul	80.08
Fuel and oil	174.44
Crew	19.04
Landing fees	11.48
TOTAL DIRECT COST	$421.68

This hourly direct operating cost translated into cents and divided by the stage speed gives an aircraft-mile cost of about 94 cents, which in turn, divided by payload in short tons, gives a cost of about 13½ cents per ton-mile. The SBAC formula uses the British long ton (2,240 pounds) and consequently arrives at a slightly higher figure, which should not be compared directly with operating costs of American equipment.

The work capacity of the Comet II is estimated at 8,250,000 ton-miles of payload per year, assuming a capacity payload of 14,000 pounds, a stage speed of 440 miles per hour, and an annual utilization of 3,000 hours. Applying this work capacity, and assuming:

Revenue rate.....91c/ton-mile
Average load factor.....65%
Overhead.....$1,260,000 per year

de Havilland comes up with the conclusion that a Comet II flying 3,000 hours a year can earn enough money to buy another Comet and still show a profit of $840,000 a year. This is based on a yearly revenue at 65% payload of $4,872,000 and a gross operating cost of $2,531,200 a year, leaving a profit per airplane year of $2,340,800. The cost of a Comet is figured at $1,442,000 plus radio equipment, or a total of about $1,500,000.

Using the same figures, de Havilland estimates the break-even load factor at 34%. Thus the average break-even-load factor is 4,700 pounds and for each 1,000 pounds of payload over that the plane will earn $532,000 a year.

Major factor in the Comet II's economy is its high block speed, which is rated at 440 miles per hour, based on a 500 mile per hour cruising speed and allowing 10 minutes terminal time. This, says de Havilland is 170 miles per hour more than any competitive plane in service.

48-Seat Version

Over longer ranges, where payload is not limited by capacity, the Comet II offers about 8,500 pounds more payload than the Comet I, or alternatively about 800 miles more range. The increased weight also permits greater seat density, and de Havilland is offering a 48-seat version (see drawings) for routes where the 14,000 pound capacity load may be carried, compared with the 36 seats in the Series I.

It also permits a maximum stage length of 2,500 miles, making the Comet II a trans-Atlantic airplane with a stop at Newfoundland, which the company admits the Comet I is not. This is not a "stretched" range; the company has made allowance for 50 mph head winds and reserves. De Havilland says it is possible to offer a 12,500 pound payload throughout the year on the 2,344 mile London-Gander route, or on the 2,415 mile San Francisco-Honolulu route.

It can be seen that the Comet II is a more economical airplane than had been supposed. Steps are also being taken to hurry production of the plane; in addition to de Havilland's production, Short Brothers and Harlan, Ltd., will build the planes at its Belfast, Northern Ireland, plant. The first plane off the Short line is expected in mid-1954. Of 45 Comets ordered to date, 24 will be Series II models.

Third Model

But de Havilland is not resting on the Comet II. Right behind it will come a new model, the Comet III, or Super Comet, which will have a fuselage 12 feet longer and improved Avon engines of 7,500 pounds thrust. It is expected to have a cruising speed of 550 mph and a capacity of 55 or more passengers. It should be in service by 1956.

On another front of the jet transport battle, Congressmen and airline operators were given a preview of what to expect in the way of competition from the Comet, when Civil Aeronautics Administrator Charles F. Horne introduced in Senate testimony a map showing the routes the Comet will be flying between now and 1955. Here is what it shows:

Pan American World Airways will probably be in for most of the competition. The London-Johannesburg route of British Overseas Airways Corp. is already providing competition for Pan Am's New York-Johannesburg run, and BOAC is now using Comets exclusively on that run. The BOAC route does not directly parallel Pan Am's, however; BOAC flies through central Africa, via Rome, Cairo, Khartoum, Entebbe and Livingstone, while Pan Am operates from the Azores to Lisbon and then down the east coast of Africa.

Pan Am's route from the West Coast to Australia will also run into competition from the Comets, when Canadian Pacific Airlines introduces the jets on its Vancouver-San Francisco-Honolulu-Australia route in autumn, 1952, according to Horne's map.

Pan Am's African east coast run to Brazzaville, French Equatorial Africa, will meet Comet competition from the French Union Aeromaritime de Transport, which will put Comets into service on a Paris-Dakar-Abidjan-Brazzaville route in autumn, 1952.

Cairo-Singapore

Air France will provide additional competition to Pan Am's route through Europe to the East. Air France will fly a Paris-Saigon route, CAA states. BOAC will also start a Cairo-Singapore route this fall.

Pan Am will find additional competition in the Pacific from British Commonwealth Pacific Airlines, which will operate Comets from Sidney to Honolulu in autumn, 1952. Later, BCPA will institute a Fiji-Canton-Honolulu route connecting Australia and New Zealand with the U.S. (1954-55).

Other competition:

Trans World Airlines on its trans-Atlantic-European-African routes, from BOAC. BOAC's trans-Atlantic service, which will also cross the U.S. via Tulsa to San Francisco, then on to Honolulu, Sidney and Singapore (more Pan Am competition), is scheduled for 1955.

Pan American Grace Airways, on its South American East Coast route, from BOAC, date unscheduled.

American Airlines, on its route to Mexico City, from BOAC, which will fly New York-New Orleans-Mexico City, date unscheduled.

Braniff Airways, on its South American routes, from the aforementioned BOAC East Coast service.

Colonial Airlines, on its Bermuda run, from BOAC, scheduled for March, 1953.

United Air Lines and Northwest Airlines, on their Honolulu-West Coast routes, from Canadian Pacific's Vancouver-San Francisco-Honolulu route (autumn, 1952).

Ten additional Convair 340's have been ordered by United Air Lines, bringing its total order to 50 planes. In announcing the order UAL President W. A. Patterson said it is part of a $56 million equipment expansion program which will include 25 new four-engine planes, presumably Douglas DC-7's.

Colonial on Block: Ten Lines to Bid

The assets of Colonial Airlines are for sale, and 10 airlines have been invited to submit bids for them.

Colonial's directors have decided that the company will not be able to stand alone because of the "continued increased cost of labor, fuel and materials, and the reduction of air mail subsidies throughout the industry," and that consolidation with a "strong major trunk line carrier" is the best course of action.

The new plan followed the defeat by stockholders six weeks ago of management's proposal to sell the assets to National Airlines. Since then, Eastern Air Lines has made a renewed offer for merger or purchase (AMERICAN AVIATION, May 26).

Sealed proposals must be received on or before June 26. They will be held in confidence for a month while being evaluated, and it is understood that Colonial will announce its decision on July 26. The company reserves the right to reject any bid.

Nine airlines serving common points with Colonial have been invited to bid—American, TWA, United, Eastern, Pan American, National, Northeast, Northwest, and Capital. The tenth is Delta, which has application on file for a merger with Northeast, and which is a party to CAB's New England-Southern States Merger Investigation.

In a letter to stockholders, Branch T. Dykes, Colonial president, said that although the National proposal failed to get the required majority of outstanding stock, over 70% of individual stockholders voting at the recent annual meeting favored the deal. His letter did not mention the renewed EAL offer.

Six Foreign Carriers Buy Super Connies

Lockheed Aircraft Corporation has received $25,000,000 worth of new orders for Super Constellations from six world airlines, bringing total orders for the Super Connie to 85, and 392 for all commercial Constellation types. Backlog is now approximately $257,000,000, with production extending into late spring of 1954.

Making their first orders for modern four-engine equipment are Iberia of Spain and Braathens of Norway, which placed orders for three and one, respectively.

Avianca of Colombia has ordered three, Air India International two, and Qantas of Australia two, bringing its total to three; KLM Royal Dutch Airline's order for one more brings its total to nine.

The Spanish National Airline's order will enable it to establish direct service from Madrid to New York, thus entering Spain in the trans-Atlantic competition.

PAA Buys 3 DC-6A's For Trans-Ocean Cargo

Pan American World Airways has purchased three Douglas DC-6A cargo airplanes for service in both Europe and Latin America, areas in which cargo business has been growing. Delivery is expected early in 1954 at a cost of more than a million dollars for each aircraft.

The long range over-ocean version, designed especially for Pan Am, will carry a 25,000 pound payload. Cruising at more than 300 mph, the Pan Am version of the DC-6A is expected to make the trans-Atlantic crossing in about 13½ hours.

The carrier has been operating a similar plane since January 1 on a lease basis. The purchase brings PAA's total order of DC-6 type aircraft to 42, some of which are already in operation.

Behncke's Ouster, Sayen's Election Legal

The Air Line Pilots Association's action in recalling David L. Behncke and divesting him of his duties as ALPA president was legal, according to a ruling by Special Master in Chancery Victor LaRue. He also ruled valid the election of Clarence L. Sayen to succeed Behncke.

Behncke filed a $2 million suit last July against Sayen and the ALPA board, charging them with illegal action and asking that the new management be kept from acting for ALPA's membership.

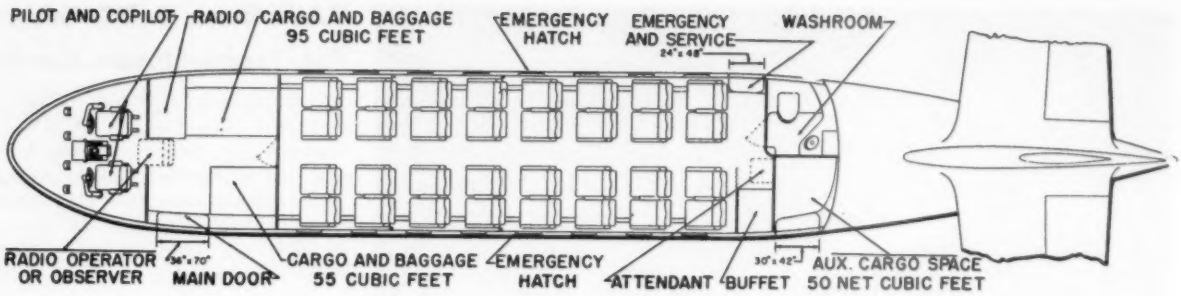
LaRue also ruled against Behncke's suit and a counter-suit by the Sayen group for money allegedly spent over Behncke's original estimates in constructing ALPA's Chicago headquarters.

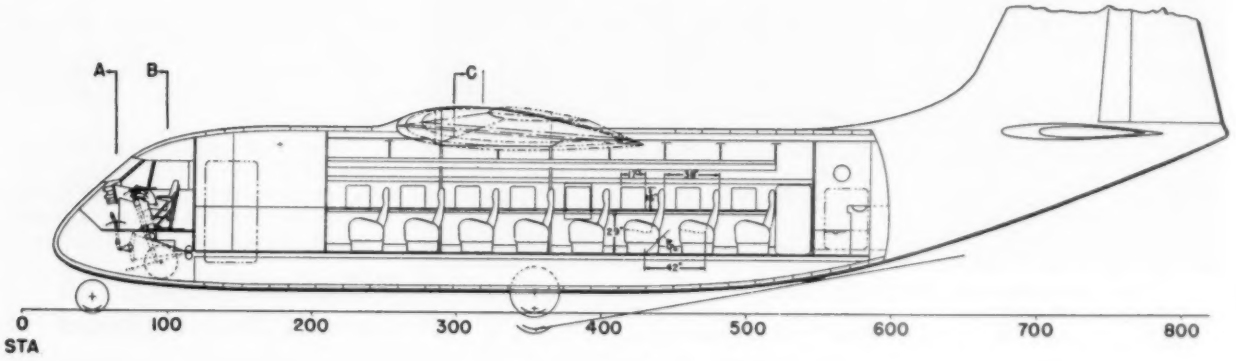
Opposing attorneys will argue LaRue's report before U. S. District Court Judge Walter J. LaBuy in Chicago, who will then rule on its admission.

Duff Joins Wisconsin

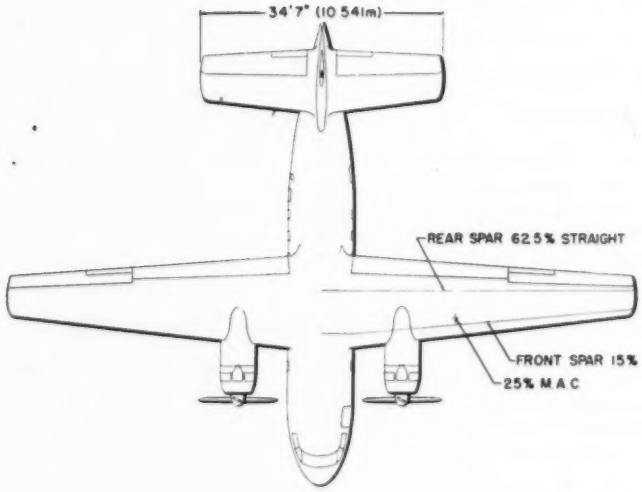
Donald A. Duff has been appointed executive vice president of Wisconsin Central Airlines, succeeding Hal N. Carr, who resigned in March.

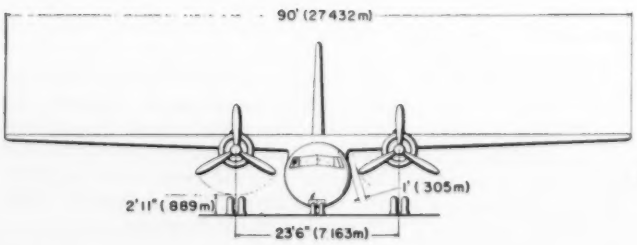
Duff was named executive vice president and general manager of Colonial Airlines last January, and left the company in March following resignation of Alfons B. Landa as president. Prior to that, he was Frontier Airlines' v.p.-traffic, sales and public relations. He has also been with Pennsylvania-Central Airlines, predecessor to Capital; Northeast; Continental; and was president of Challenger, which merged with Monarch to form Frontier.

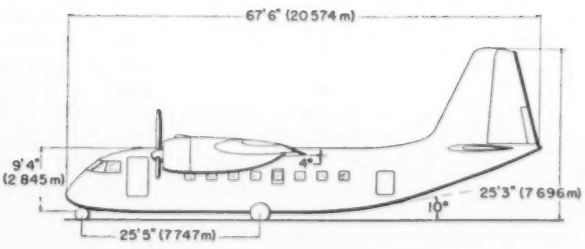




Interior and Exterior Views of Canadair's CL-21







IN-FLIGHT sketch of Canadair's CL-21.

Foreign Firms Seek U. S. Feeder Market

Canadair and Fokker designs look good, cheap, and available; challenge seen to U. S. manufacturers.

By Robert M. Loebelson

THE NATION'S 16 local service airlines, which currently operate 121 Douglas DC-3's and have been seeking a satisfactory replacement suited to their needs for several years, may not have too long to wait. At least two well known aircraft builders, both of them outside the U. S., have indicated they are giving serious consideration to production of local service transports which generally meet the specifications laid down by the 16 lines themselves. They are:

• **Canadair, Ltd.,** Montreal, which has just released more details on its CL-21 (American Aviation, May 12).

• **Royal Dutch Aircraft Factories Fokker,** Amsterdam, which has already completed the preliminary design stage and built a full-scale mock-up of such a transport, the Model 27.

The Fokker proposal calls for a high-wing, turboprop-powered, 28-passenger ship, although piston engines could be substituted if the purchaser preferred them. It is said to bear a striking resemblance to the artist's sketch of the Canadair plane, mainly because both are patterned after the same specifications. Fokker reportedly is ready to start production in the very near future if orders are forthcoming, since it will have surplus engineers and technicians soon.

Canadair, on the other hand, is still surveying the world market potential and hopes to make a decision as to whether to go ahead with the project by December 1. In the meantime complete engineering specifications have been authorized and the General Dynamics Corp. subsidiary is going ahead with the construction of a full scale mock-up and wind tunnel tests of scale models.

U. S. Market

The potential U. S. market alone includes not only the 121 DC-3's flown by the local service carriers at present but also a good percentage of the remaining 380-odd twin-engine Douglas planes operated by the trunk lines, international carriers, and the non-skeds. In addition, there several hundred other DC-3's being flown all over the world, and many of these may eventually be replaced by the aircraft produced by the firm which gets the orders from the U. S.'s local service lines.

If Canadair, after completing its survey, should decide to go ahead with production of the CL-21, the twin-engine transport would start down a Montreal production line by the last quarter of 1954, according Adm. L. B. Richardson, General Dynamics' senior vice president.

The plane would have a gross weight of 32,000 pounds, carry 32 passengers and a crew of three, would operate from 3,500-foot runways, and would have a 220 mile per hour cruising speed with a 7,000 pound payload. It is currently designed around Wright Cyclone 9HE engines, but Canadair engineers are studying the possible use of Pratt & Whitney and British piston engines as well.

Other features of the CL-21 include:

• **Pressurized cabin** maintaining sea level pressure up to 5,000 feet and an 8,000 foot cabin altitude at 15,000 feet;

• **Tricycle landing gear** with dual wheels and large capacity brakes;

• **High wing** configuration providing good visibility from cabin windows and convenient cargo loading at truck bed level.

• **Integral passenger steps** and carry-on baggage stowage.

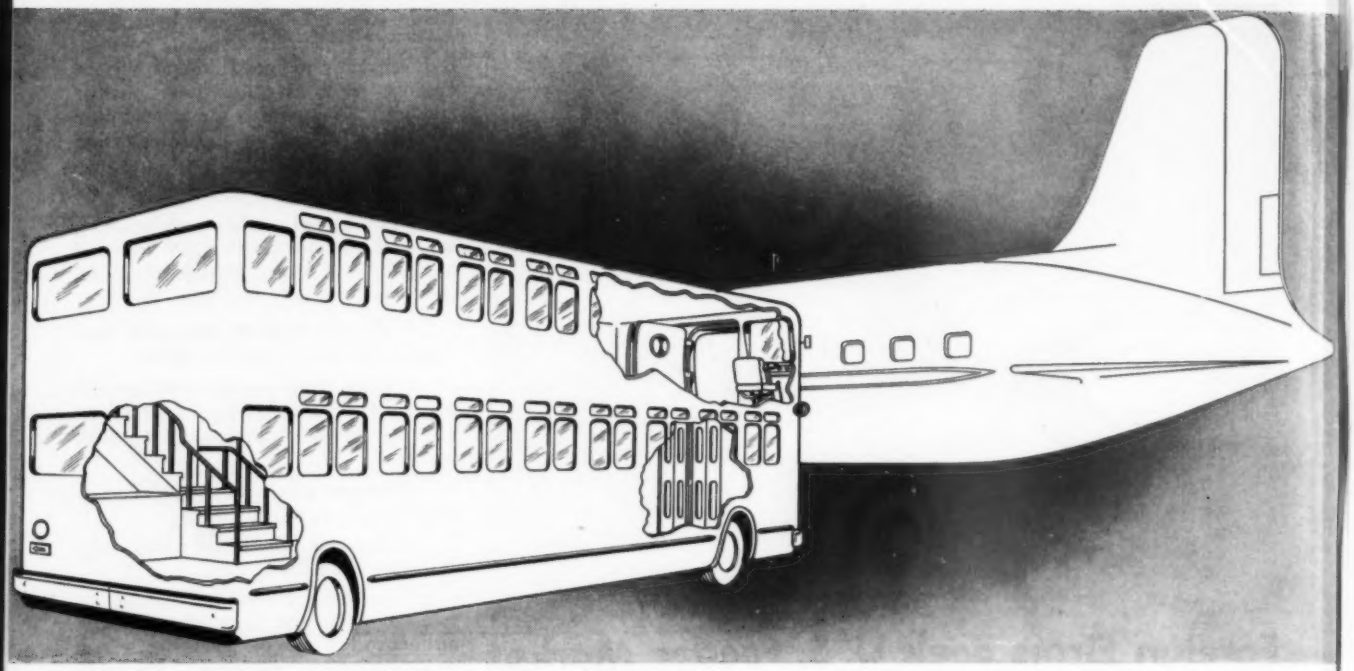
• **Constant speed,** full feathering, reversible propellers.

The Dutch company, realizing the reluctance on the part of American airlines to buy foreign planes for several reasons (among them the fact that spares might become hard to obtain in case of emergency), is reportedly willing to license a U. S. manufacturer to handle service and spare requirements. This American company might also be called on to collaborate on engineering to a certain extent, thus providing domestic carriers with an "American" airplane featuring standard-size threads on nuts and bolts.

Selling price for the Canadair CL-21 is about $450,000 if it goes into production. Fokker's proposal was not as specific in dollar values, but its low labor cost probably would enable production of the Model 27 at about half the price of a U. S.-produced local service transport.

Five U. S. transport builders, Boeing, Convair, Douglas, Fairchild and Lockheed reported interest in a local service plane, and their estimated cost for such a craft ranged from $400,000 to $600,000. Each of these manufacturers, however, has informed the local service committee that the current shortage of engineering talent and large military orders would prevent them from starting work on a plane suitable to the needs of the 16 lines for at least a year and maybe more.

The three-man Davis committee has not yet abandoned all hope of getting some U. S. aircraft builder to consider early production of such a plane, however. Other potential production sources are still to be visited. But the Piedmont Airlines president apparently feels that if no other companies decide to undertake such a project, either the Canadair or Fokker airplane will be a satisfactory DC-3 replacement.



ARTIST'S RENDERING of American Airlines' mobile gate house.

Mobile Gate House Would Save Time, Space

In early design stages, American Airlines' double decker unit would seat 90, ease passenger handling.

By Eric Bramley

A NEW IDEA for reducing airport gate space and improving passenger handling by carrying passengers to and from their planes in "mobile gate houses" instead of bringing the planes to gates, is being explored by American Airlines, and is in the preliminary blueprint stage.

The mobile gate house, an idea originated by O. M. "Red" Mosier, vice president of AA, would mark a major change in the handling of passengers and planes at the larger U. S. airports.

O. M. Mosier

The gate house (see cut) resembles a double-deck bus and seats 90 people, with the driver located on the top deck. It would be used for originating and terminating flights.

Here's how the idea would work: A space possibly 40 feet wide at the airport terminal would be parking room for the gate house, two vehicles for the handling of baggage, and a check-in counter. As passengers started to arrive and check in, one of the baggage vehicles would be dispatched to the remotely-parked airplane 10 minutes before departure, the others five minutes later. Baggage of last-minute passengers would be carried to the plane on the mobile gate house.

Nose First

Passengers are loaded aboard the gate house, entering through a door on the lower deck. As soon as they are loaded and the vehicle pulls away, the flight is considered dispatched. The operation of the vehicles would be controlled by walkie-talkie or a similar means of communication.

Incoming passengers on terminating trips would be transported via gate house to one of the spaces at the terminal, where they would pick up their baggage.

The gate house, which is parked nose-first at the terminal, also approaches the airplane in the same manner. A door in the front of the second deck is used by passengers to enter the plane. The plane's door opens into the door of the gate house, and a hydraulic piston is used to raise the gate house's floor so that it can be used for all types of planes.

The seating capacity of 90, utilizing both decks, was decided upon so that the gate house can accommodate passengers for all the larger aircraft in use today. All types of plane doors can be fitted to the gate house door—DC-6, DC-4, Constellation (which opens inward), and Stratocruiser. The latter, which has a door considerably higher than other types, is provided for by a glass pannel above the gate house's second-deck door. The panel slides up and back to accommodate the Stratocruiser.

It's apparent from the fact that AA is designing the gate house to handle planes of all types that the company believes that this new piece of equipment shouldn't be purchased and used by each individual airline. Mosier believes that if gate houses are to be owned by the airlines, they must be pooled for use of all. They might well be owned by airports, with the airlines paying for their use, he adds.

Advantages

Advantages claimed for the gate house include:

• **It will save considerable space** at airports by making construction of more gates and fingers unnecessary.

• **It will save considerable space** at airports by making construction of more gates and fingers unnecessary.

• **It will make possible remote parking** of aircraft and will remove all servicing activities from the gate.

• **It will lessen the handling of** baggage.

• **There will be only one check-in** point for passengers.

• **Passengers will not be exposed** to bad weather.

"Many large airports today are continually running out of gate space, but there are extensive, usable areas elsewhere on the fields," Mosier points out. "So why not take the gate area, condense it, put it on wheels, and carry the passengers to remotely-parked planes?"

In this way, he states, an airline can have "work docks" located away from the terminal at which all servicing can be performed—fueling, some maintenance, cabin cleaning, loading of food and supplies, etc. Passengers wouldn't be sent to the plane until all these activities were completed, and the flight was ready for immediate departure.

It will be important to keep as many jet transports as possible away from terminal areas because of taxiing problems, heat and blast, fuel conservation, noise, and the necessity for using auxiliary devices for parking them, Mosier says, emphasizing the urgency for remote parking provisions.

Use of mobile gate houses, Mosier reasons, will allow airports to funnel all passenger through a central terminal, to the advantage of non-aviation concessionnaires. And, if managements of new airports decided to purchase the gate houses, they could well afford to do so with savings they will realize in construction costs.

Under the new arrangement, all airlines would use all gates. "An American Airlines' agent, with his 'portable cash box,' moves in behind the counter, dispatches his baggage vehicles and his gate house, and moves out," Mosier explains. "Then a United agent follows, then TWA, etc."

How many 40-foot areas for accommodation of baggage vehicles and gate houses will be needed will depend on the volume of traffic. One gate house might, under certain conditions, handle two Convair or Martin trips. There would still have to be gate areas for flights making intermediate stops.

The baggage vehicle for use with the gate houses will have a conveyor extending out over the front of the engine. Baggage will be loaded from the front, and carried by the conveyor to a truck bed in the rear of the vehicle.

In the preliminary stages, AA is, of course, still experimenting, and is not yet in a position to talk costs.

LAN to Choose Planes

Linea Aerea Nacional, Chilean national airline, will decide within the next month whether it will purchase three Douglas DC-7's or three Lockheed L-1049's. Planning to use the new aircraft for its trans-continental route from Santiago to Buenos Aires, the Chilean government is reportedly backing whichever deal is decided upon with a $6,000,000 grant or loan.

Court Halts Interchange

The CAB-authorized southern transcontinental interchange service via Eastern, Braniff and TWA has been put off indefinitely by a ruling of the U. S. Court of Appeals for the District of Columbia. Asked by CAB and the interchange partners to lift a stay gained by National Airlines against the service last April, the Court refused pending review and hearings next Fall.

New interchange operations between the west coast and southwest points served by Braniff Airways and Continental Air Lines are being discussed with the carriers by United Air Lines. With both carriers, UAL would use Douglas DC-6 aircraft interchanging at Denver.

The proposed United-Continental service would be from the Pacific Northwest to southwest CAL points, one objective being a direct service between Seattle and Wichita where the Boeing Airplane Co. plants are located. With Braniff, United would operate between west coast cities and Texas area points.

CAB Avoids Issue

CAB has effectively avoided participation in the California intra-state coach fare controversy, despite a Western Air Lines' plea. Faced with possible involvement by a Western petition for "declaratory relief," CAB dismissed the plea as "moot," indicating it has advised Western to seek an exemption from provisions of the Civil Aeronautics Act in order to comply with orders of the California Public Utilities Commission.

One of three carriers ordered to make refunds to passengers for a period when fares filed with CAB differed from those on file with California body, Western asked CAB help to avoid violation of the rebate provisions of the Federal statute. The exemption would remove any conflict between the Federal and State laws and keep CAB free of what promised to be a precedent-setting fight on the State vs. CAB control of intra-state fares.

USAF Reverses Stand, Favors Jet Transport

The Air Force's position with regard to government assistance in the development of a civil jet transport apparently was clarified in late May—and the clarification apparently was favorable from the standpoint of most of the industry.

After Chairman Edwin C. Johnson (D., Colo.) of the Senate Interstate and Foreign Commerce Committee had accused the Department of Defense of a "negative attitude" in its testimony at hearings on jet prototype development legislation earlier in the month, Roswell L. Gilpatric, Acting Secretary of the Air Force, wrote Johnson a letter in which he stated that:

• **"It is my understanding** that the position of the Department of Defense is that it generally favors adequate prototype jet transport development at any time that it can be carried on without interfering with the critically important military aviation program."

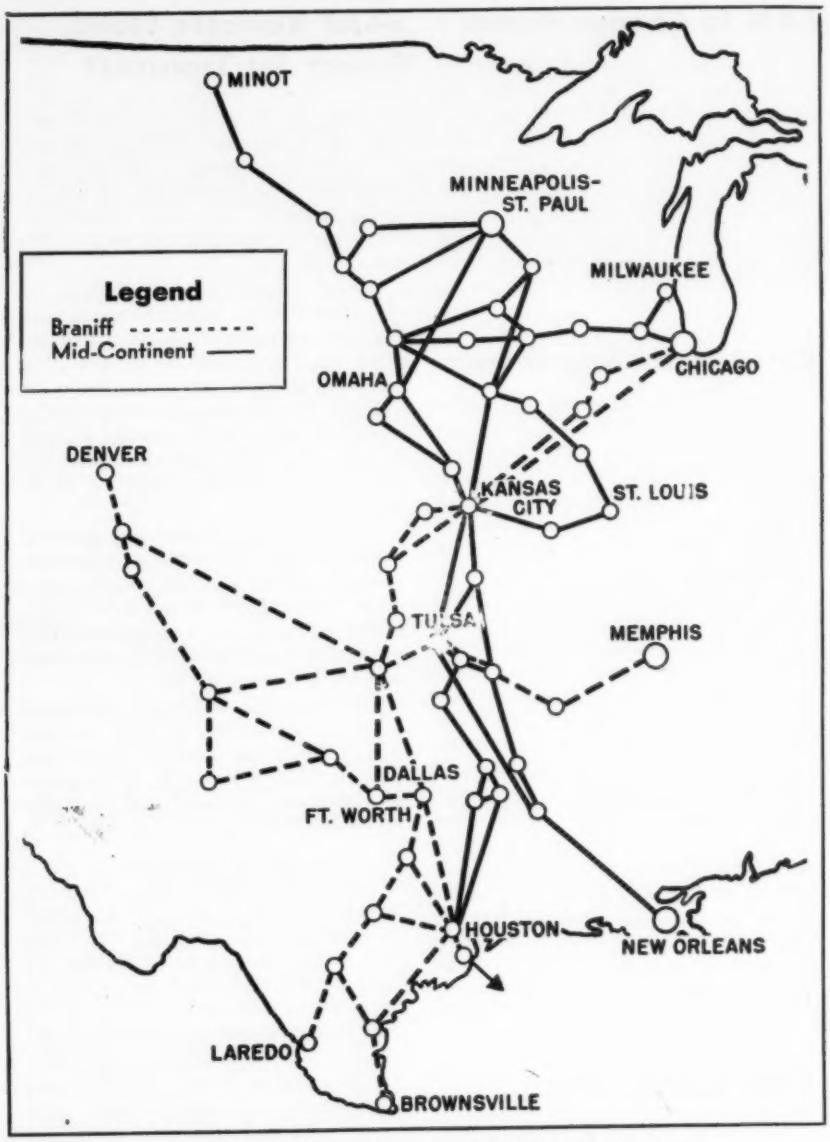
• **"Assuming that such interference** is avoidable under existing circumstances, it is my personal belief that steps looking toward the development of a suitable jet transport for civil aviation could be initiated at this time."

Earlier Statement

In the hearings, Assistant Air Force Secretary Edwin V. Huggins had stated that the prototype proposals "give concern to the Department of Defense because of the possibility of diversion of the aviation industry's capacity for research, development and production during the period of military expansion."

Huggins expressed the belief that the industry's facilities are now "saturated" with combat aircraft orders and that so long as this condition continues the proposed prototype development should be postponed, even if the aircraft industry were willing to attempt such a program out of its own funds and resources.

In his letter of clarification, Gilpatric wrote: "The Air Force has long recognized the necessity for the United States to retain its position of leadership in civil aviation, and has consistently supported efforts to achieve such leadership. Our position has been that the Department of Defense should cooperate in the development of jet transport aircraft for civil aviation in a manner and to the extent consistent with its overall responsibilities. Such development should not be justified on the basis of military necessity, and it should not, of course, interfere with existing defense programs, nor involve Department of Defense funds."



DOMESTIC PORTIONS of Braniff/Mid-Continent routes.

Braniff Mid-Continent Merger OK'd

Four-month handling sets record; unanimous CAB approval precedes stockholders' action.

CIVIL Aeronautics Board has unanimously approved the proposed merger of Braniff Airways and Mid-Continent Airlines in the shortest merger proceeding in CAB history. Exactly four months elapsed between filing of the agreement and CAB decision. Subject to compliance with various labor provisions and gaining approval of stockholders of the two firms, the current MCA certificates will be reissued in Braniff's name and the merger consummated.

Deal which CAB approved calls for exchange of one share of Braniff stock for 1½ shares of MCA stock. Shareholders are expected to vote on the merger in about two months. Under Oklahoma law, Braniff will need an affirmative vote of 51% of its outstanding stock. MCA, existing under Delaware corporate law, will need a two-thirds majority of outstanding stock.

The combined system would have a total of 7,662 unduplicated domestic route miles, plus Braniff's international routes through eight Latin American countries. President of the merged airline will be T. E. Braniff.

The proposal moved through CAB's procedural steps with virtually no opposition and major emphasis on employe protective measures. Early in the case, Braniff attorney Hubert A. Schneider withdrew new route proposals reducing the proposal to a so-called "clean merger" status and paving the way for expeditious handling.

Approximately 4,000 employes are involved in the merger but company officials estimate that less than 100 jobs will be declared surplus. The first of the current series of merger cases to be completed by CAB, the Braniff-MCA decision is considered a precedent with respect to employe protective measures.

Labor Provisions

In one respect, it permits the Air Line Pilots Association to employ its new machinery for integration of seniority lists of pilots of merging firms. CAB encourages the use of such machinery but made provision for such integration in the event the internal ALPA procedures fail. Other significant labor provisions included:

• **Dismissal Allowance:** Dismissed employe shall receive a monthly dismissal allowance of 60% of his average monthly compensation during the year preceding his dismissal, the period of the allowance to be based on and related to his length of service. Employes may elect to take a lump sum payment in "an amount slightly less than the total amount which would be payable as a monthly dismissal allowance."

Compensation

• **Displacement:** Allowances will be made for employes who are not deprived of their employment as a result of the merger, but are retained in positions offering lower compensation than received prior to the merger. This applies only to "compensation." If disputes arise with respect to rules governing working conditions or privileges, "such matters should be left to . . . collective bargaining."

• **Real Estate Problem:** If employe owns own home in the locality from which he is required to move, he shall at his option be reimbursed by the carrier for any loss suffered in its sale.

• **Excluded from protection:** Benefits shall not apply to employes (other than flight personnel, meteorologists, or dispatchers), who, immediately prior to the effective date of the merger were being compensated at a rate in excess of $6,500 per year.

MAROONED HANGARS at Holman Field narrowly escaped the flood, which rolled knee-deep through the administration building.

Airline In Trouble

WHEN an airline fights a river, who wins? During the disastrous floods that struck the midwest this spring, Northwest Airlines did battle with the Mississippi and proved that an airline could come out damp but victorious.

Northwest's system overhaul base at Holman Field, St. Paul, Minnesota, survived the flood threat in 1951, when the nearby Mississippi reached a crest of 18.8 feet. This year, with the highway to St. Paul awash and automobiles useless, high-bodied trucks began bringing in loads of planks and sand for dikes, and NWA's 700 employees headed by Malcolm MacKay, executive vice president, and Frank Judd, v. p.-operations, settled down to a day-and-night struggle.

A DC-3 that was in the shop was rushed to completion and flown out. A dismantled DC-4 was left in the hangar. As much equipment as possible was hastily trucked to safety at nearby Wold-Chamberlain Field, to which a Stratocruiser and a DC-4 were diverted.

By the time the flood crest of 22.2 feet was reached, Holman Field was a vast lake, accessible only by amphibian "Ducks," but the weary men and women at NWA knew that their dikes had saved the two big hangars.

Competitors, meanwhile, had pitched in to help. BOAC had supplied a P&W R-4360 for Northwest's Stratocruisers, and the Army two more through the CAA. Two Pratt & Whitney R-2000's were overhauled by National at Jacksonville, while Delta handled another at Atlanta. Mid-Continent provided test equipment. at Wold-Chamberlain.

Other lines offered help, but it wasn't needed. Two days after the water began to recede, a week before the river returned to its bed, Northwest was back in business at its old stand.

ROUND-THE-CLOCK work by employes building dikes saved equipment.

TRUCKS carried some material to safety at Wold-Chamberlain Field.

HARDEST HIT was the Northwest stockroom. When water seeping under dikes buckled concrete floor, room was flooded to equalize pressure.

IATA Experts Probe Flight Radio Problems

Boom-type mikes, as well as diction training, may aid intelligibility; report on new antenna tests.

NO SINGLE factor will produce improved clarity of aircraft radio communications more than improved pilot diction and the use of a smaller speaking vocabulary. This is the trend of thinking expressed during the Airborne Radio Equipment Symposium conducted as part of the fifth IATA Technical Conference in Copenhagen, May 15-17.

Presided over by United Air Lines' Edgar A. Post, the symposium drew communications and electronic experts from 20 airlines, 30 manufacturers and representatives of many civil and military goverment agencies. This is a summary as reported by AMERICAN AVIATION's European correspondent Richard G. Worcester.

Post

Many factors influence clarity of the spoken word transmitted and received via radio. None, the symposium heard, influences it more than the pilot's diction, the manner in which he holds the microphone and the familiarity of the pilot receiving the message with the vocabulary used.

Human speech ranges from 200 to 6200 cycles. To cover this range of sounds airborne radio equipment would have to be more complex and consequently heavier and more expensive than practical. Cutting or "clipping" the high frequency sounds, those above 2500-3200 cycles, minimizes the equipment requirements while having very little effect on intelligibility. Cutting this below 2400 cycles results in rapid deterioration of the conversational clarity.

50-Word Vocabulary

By cutting the normal communications vocabulary to as few as 50 words a major improvement would result.

Meanwhile airlines were told they should give diction training to their pilots. The method proposed was to record the pilot's voice repeating key messages and then play them back to the pilot, at the same time providing keys to the shortcomings involved. Use of mask or boom type microphones was also proposed as helpful in improving intelligibility but these were not considered practical operationally.

Terming carbon-type microphones, now in common use, as the "world's most expensive loose-connection," the symposium concluded that little improvement can be expected in this type unit and urged that magnetic or dynamic microphones might provide considerable improvement.

Introduction of cockpit loudspeakers was also seen as a partial solution to improved clarity but cockpit noise levels must be cut appreciably before these are entirely effective.

20% Efficiency

Signal strength is of key importance yet power efficiency of 2-20% of the transmitted signal strength is all that can be expected today. Antenna efficiency is a major factor in this low efficiency. The Canadian National Research Council has investigated a long, low-lying antenna along the top of the body terminating at the base of the fin. Coupling to the airframe, however, is difficult since the airframe becomes the radiator, not the wire. Tests on both the Lockheed L-1049 Super Constellation and de Havilland Comet indicated that HF antennae average 20% efficiency at six megacycles.

Other antenna developments, particularly for double side band, high frequency communications, promise some improvement in efficiency. Typical antenna tests cover shorted wire or grounded antennas and open wire types.

Another factor affecting high-frequency reception is the matter of eliminating or minimizing noise between messages, noise which aggravates pilot fatigue by "continuous ear battering." This might require, particularly if accomplished by "squelch," a means of minimizing noise by bypassing automatic volume control, in the HF receivers, another pilot operated control. Coupled volume and sensitivity control, as used in some U.S. equipment, might attain the same goal.

Britain has been using single side band equipment experimentally. This is a system in which messages are transmitted on a carrier tone and one side band rather than with the two side bands presently used. Britain's tests have shown this SSB equipment has this result on HF:

- **Nine decibel improvement** in signal strength.
- **Better clarity** despite interference.
- **Virtual absence** of distortion due to fading
- **Halving of jamming probability** by a single strong interference signal within the broadcast band.
- **Improved channel spacing.**

More accurate crystal control required, within plus or minus 300 cycles, and a slightly more complicated airborne transmitter-receiver circuit are among the disadvantages disclosed. SSB ground receivers will also accommodate DSB reception although with some loss.

Introduction of SSB equipment in airline operation will require an agreement in the International Civil Aviation Organization. Also, if SSB is to be adopted, interim equipment capable of receiving both SSB and DSB transmissions must be available. Its adoption would be particularly helpful in North Atlantic operations where it is not susceptible to the blotting out experienced with present day equipment.

High frequency communications gear is worth the time and cost of development, the symposium was told, since there is no present indication that VHF will replace it completely in the forseeable future. Even the Canadians, who plan full VHF coverage, plan on backing it up with HF. VHF is considered impractical for large overwater areas today and even some land areas.

VHF Requirements

An estimated seven-fold increase in VHF channel requirements was predicted over the next eight years. The French reported that the maximum number of channels recognized by ICAO in Europe today is 19, that this will be up to 31 by 1953, with another four channels for operational control. By 1956 this would be up to 70 channels and by 1960 to 140. American operators might find as many as 280 channels required at a more distant date.

The symposium did not feel alarm at the equipment side of this channel demand. The ARC-1, modified, handles 19 channels, the British STR-12A 23 channels and the ARC-3, modified, 24. Further ARC-1 modifications and the Wilcox handle 50 channels and the STR-12C and Marconi provide 70 channels, and the Collins, Bendix and other U.K. units provide up to 140.

The advent of suppressed antennas, dictates standardization of antenna requirements. Suppressed antennas have been developed for the glide slope, marker beacon (75 megacycles), VOR, and low frequency equipment but high frequency antennas are more difficult. These antenna, for which simpler evaluation procedures are being developed, are proving more expensive to design and install but relatively cheap to maintain.

in

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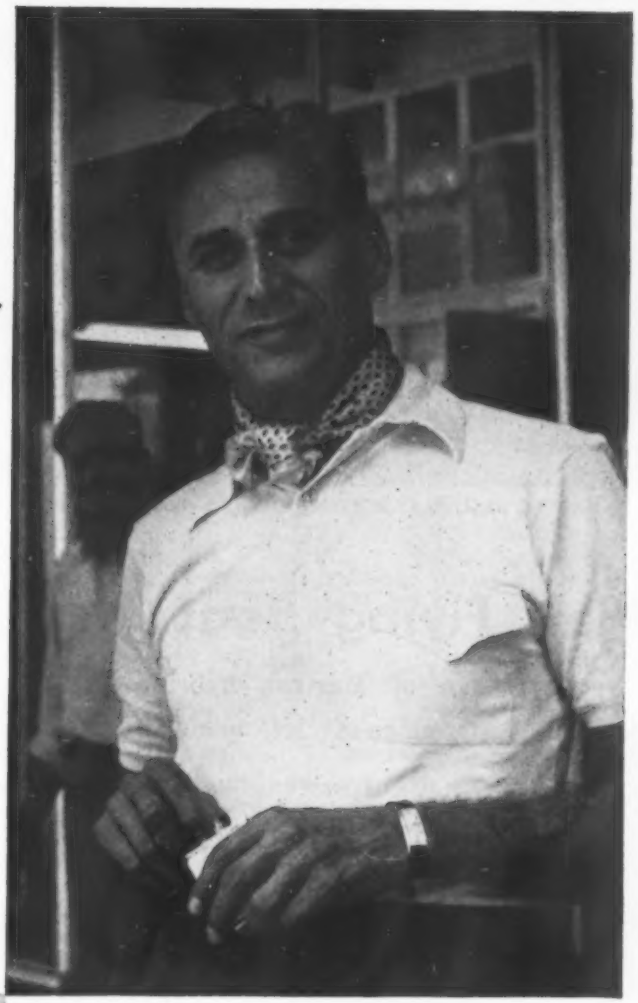

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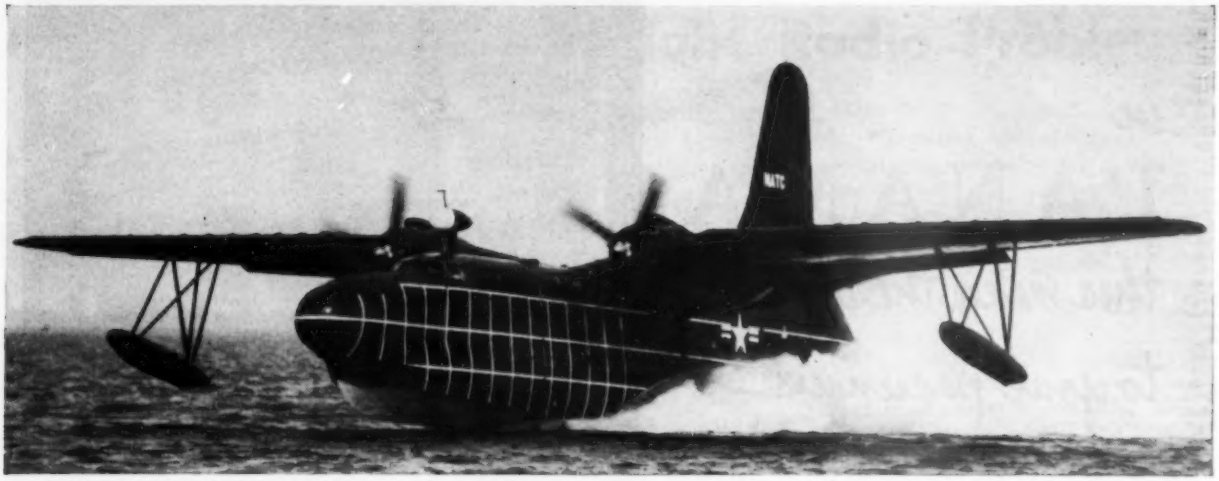


MARTIN RESEARCH MODEL M-270 taking off from Chesapeake Bay. White lines duplicate those on towing tank model.

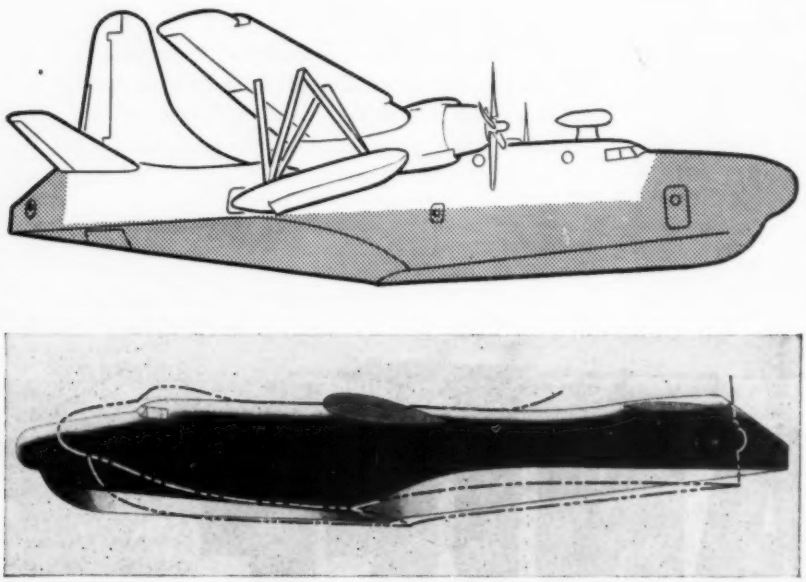
New Flying Boat Hull Revives Old Debate

Design of Martin's hybrid M-270 seen as step toward fast, efficient jet models.

By WALTER A. KILRAIN

A RADICALLY new flying boat hull, currently being flight tested by the Glenn L. Martin Co., is raising once more the question of whether the time is fast approaching when the flying boat will again be a serious contender for the air transport market. The long, slender hull of the new test model, designated the M-270, is also seen as a step toward efficient designs for use with jet engines.

Only the hull of the M-270 is new, the wing, hull crown, and empennage of the aircraft having been taken from the XP5M-1, another flying test bed that had been used in the development of the Marlin anti-submarine seaplane after starting out as part of a PBM Mariner years before. Use of the old sections enabled Martin to keep the cost of the research model down to less than $1,000,000, only 1/15th to 1/20th the cost of a completely new plane.



SHADED PORTION of top drawing shows new hull of M-270, grafted onto PBM wing and hull crown. Below, shaded silhouette of M-270 shows chine lines built after towing tank tests. Dotted line is XP-5M-1 profile.

Although other manufacturers have recently turned out modern hull designs, Martin's effort in the field comes as the culmination of more than two decades of prominence in passenger- and cargo-carrying seaplanes. Most notable, perhaps, were the Clippers, which opened the trans-Pacific route in the early 1930's. Currently, four-engine Martin Mars flying boats are maintaining regular schedules between Almeda, California, and Hawaii at what the company describes as the most economical cost per ton-mile of any airplane flying.

15-to-1 Ratio

Embodied in the hull is Martin's conclusion that a length-to-beam ratio of 15 to 1 represents the optimum point for the correlation of structural weight, and aerodynamic and hydrodynamic efficiency. Frontal area, hull volume, and total skin area all decrease as the length-to-beam ratio increases.

Of prime importance to future flying boat designs, including possible transport models, is the fact that the accuracy of towing-tank tests has been established by the recent flights and taxi tests of the full-scale aircraft. Martin engineers, working under the direction of J. D. Pierson, had available, in addition to Martin's own research, the results of studies conducted by NACA, the Navy's Bureau of Aeronautics, and the Stevens Institute of Technology.

Engineering work on the new model started in January of 1951. Two months later the XP5M-1 was hauled into the Martin plant and the work of sawing off the hull began. New frames were attached to the hull by lapping them over the old stumps and riveting the two together. Nose and afterbody were both extended six feet, with some additional stressing of the forward crown section, to allow for the changed stresses on the upper part of the hull.

Hull Tanks Removed

Since the M-270 will only fly for short periods, the hull fuel tanks were removed, and fuel is now carried only in wing cells. The forward anchor hatch had to be relocated to place it above the M-270 water line, as did an aft hatch. No changes were made in the wings, empennage, or wing floats.

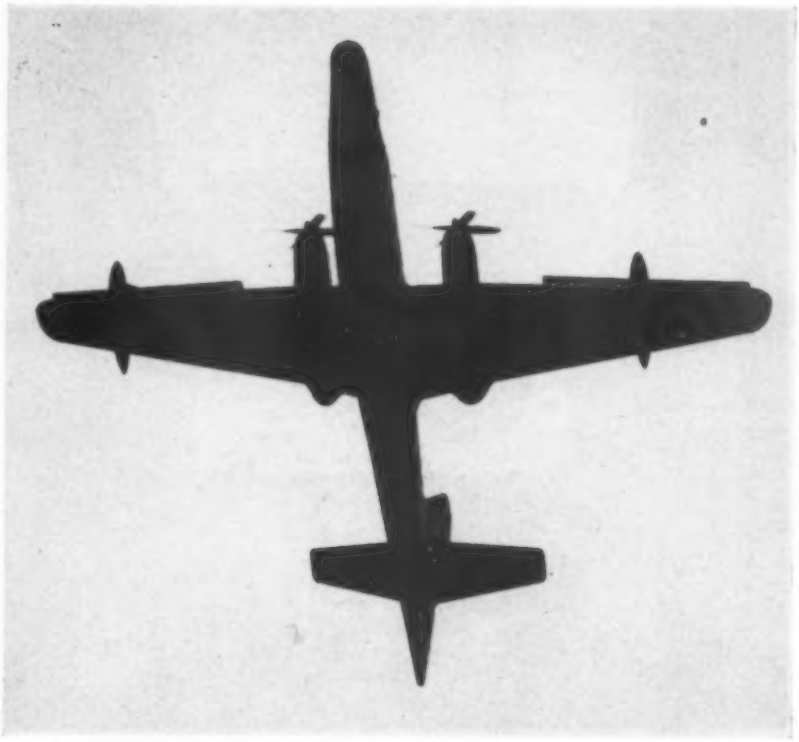
Hydroflaps, featured on the P5M-1, were also incorporated in the M-270. The flaps are a pair of underwater rudders near the tail, which may be opened individually for steering the aircraft, or opened together for braking action. When using the flaps the M-270 can turn in approximately one and one-half times its span, thereby overcoming one of the seaplane's main disadvantages, its inability to maneuver and stop quickly while on the surface of the water.

Towing tank models had been marked with vertical and horizontal black lines (see photo). When the M-270 was completed, similar lines were painted on its hull, enabling engineers to compare the performance of the test tank model with that of the full-scale aircraft. The comparisons, which so far have justified the use of towing tank models, will be continued by means of motion pictures made during taxi runs. For these tests the M-270 will either be paced by a motor launch or will pass close to a stationary boat.

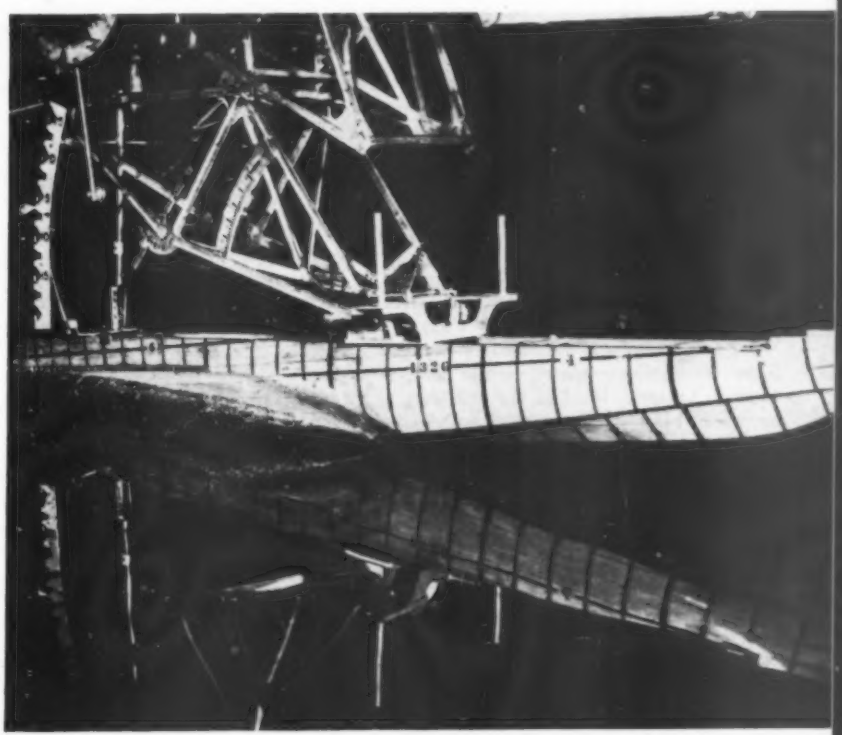
Reduced Spray

Greatly reduced spray in the vicinity of the propellers and flaps is expected from the extension and redesign of the nose section, in addition to an increase in stability and generally improved takeoff characteristics. Detail changes in the bow design and in the section behind the step are also said to have significantly reduced the drag of the hull.

Basic weight of the M-270 is 64,000 pounds, and it is planned that the aircraft will fly overloaded to 71,000 pounds. Taxi tests will be made at loadings up to 88,000 pounds.



LONG, SLIM HULL of M-270, 12 feet longer than that of the XP5M-1, is shown above. Ratio of length to beam is 15 to 1, reflecting Martin's conviction that that is the point of optimum correlation of structural weight and aerodynamic and hydrodynamic efficiency.



TEST HULL begins its run at the Stevens Institute of Technology, Hoboken, N. J. Later tests with aircraft proved towing tank data accurate. NACA and the Navy's Bureau of Aeronautics also contributed to the design studies.

Chair Back Advertising is being used by Eastern Airlines on all of its fleet. Single sign is used on double set of seats and two on triple sets. Messages range from comments on No-Shows to new equipment plugs.

More Women Fly Air Coach Than Men

ABOUT 61% of all passengers on its Airtourist flights are women, a reversal of the usual passenger complement aboard its standard-fare trips, 75% of whom are men, American Airlines states in the first published survey of its low-fare service.

Other findings:

• **One out of every six** passengers was flying for the first time, against 9% on regular flights.

• **64% were on vacation,** or some form of pleasure travel, while 32% were on business. Most of the rest were on some kind of emergency personal business. On regular flights, 75% are on business.

• **Over 81% plan to stay** at destination more than a week, and 54% more than two weeks. About 75% of regular-fare passengers stay a maximum of one week.

• **Age levels** on tourist flights are lower. Standard fare passengers split 50-50 at the 40-year mark—half over, half under. About 66% of tourist passengers are under 40.

The service is attracting a majority of comparative stay-at-homes. Fifty-six percent of those reporting said they have taken only from one to four intercity trips during the past year, including all means of transportation. Those taking more than one a week represented only 2%.

When asked why they had selected the tourist flights, the majority mentioned reduced fare and previous experience with AA flights. About 19% said the service had been recommended by friends; another 15% received a recommendation from a travel agent.

Wiggins Gets Set for Helicopter Service

Wiggins Airways has begun a helicopter training program for its pilots, Joseph Garside, president, has announced. Pending a favorable CAB decision, Wiggins proposes to institute a scheduled helicopter service in New England, and the training program is the first step toward that end.

In addition to the training, a three-step plan for conversion to helicopters calls for replacements of the Cessnas currently being used with eight DC-3's, which would go into immediate service and two eight-passenger helicopters, which would start about a year later.

Fare Increase Drives NY Stores to Rail Use

Thirty-three New York department stores have switched their transcontinental shipments of ready-to-wear apparel from air to surface transportation because they claim that the recent 10% increase in airline tariffs wipes out the advantages of using air freight.

The switch means a loss of over 1,000,000 pounds of air freight a year, it is said, mostly in shipments of apparel from the West Coast to New York.

The stores have worked out a new agreement with Railway Express Agency for surface shipment of apparel from the coast at $14.91 per 100 pounds, against the new air rate of $24.61 (including assembly and distribution costs), according to Hugh Bright, chairman of the Metropolitan Traffic and Receiving Unit's transportation committee, which represents the stores.

REA delivery time between terminals by train will be cut to three days on transcontinental shipments, against the second-morning delivery guaranteed by the airlines, Bright said.

Air shipments made possible lower inventories and a saving on mark down, justifying the higher price of air freight, but the rate increase wiped out these advantages, he stated, adding that a saving of only one day in delivery is not enough to make any difference to retailers.

AA Seeks to Restrain Use of Corporate Name

American Airlines' lawsuit against his firm's name, European-American Airlines, is a "continuation of the harassing tactics employed by the presently certificated carriers against any new enterprise that has the temerity to try to get into the air transportation field," according to Theodore T. Ludlum, president. European-American is a non-operating airline awaiting CAB and Presidential action on a trans-Atlantic all-cargo certificate application.

Ludlum said the AA suit in U. S. District Court for the District of New Jersey alleged that use of the name would "cause great and irreparable damage to plaintiff . . . by passing off the services of defendant as the services of plaintiff." AA, he added, seeks to restrain use of the words "American," "American Air," and "American Airlines" either alone or in combination.

Airport Certification Controversial Issue

Reaction to Doolittle Commission report slow starting as industry critically awaits more details.

By KEITH SAUNDERS

REACTION to the 25-point program of the President's Airport Commission for making the nation's airports safer and easier to live with, now three weeks old, has been slow in generating. Primary reason has been that major groups concerned were unwilling to go on record with objections until the final report with detailed reasoning for the recommendations was available.

In response to an AMERICAN AVIATION survey, however, two national aviation organizations, the National Association of State Aviation Officials and American Association of Airport Executives, put themselves on record with specific comments on some of the controversial aspects of the report.

ATA Waiting

The Air Transport Association is greatly interested in the recommendations, many of which could have considerable bearing on the operations of the nation's airlines, but it was withholding its comments pending release of the full report containing the technical reasoning behind the various recommendations.

Later reaction might be much more specific and might establish a completely different pattern, but, if the comments of NASAO and AAAE are at all typical, the industry will:

- **Find most** of the Commission's recommendations "well-considered" and "worthwhile."
- **Find some** of them unworkable or of dubious practicability.
- **Find a few** open to serious objection.

On the last point, the single recommendation most likely to meet with strong opposition is the proposal that the Civil Aeronautics Act be extended to permit Federal certification of airports used in interstate commerce.

Cecil Meadows, president of the AAAE, said this proposal would be acceptable to his group if the sole purpose is to protect the airport, but that otherwise the Association "will fight to the end with every means at our disposal to defeat this proposal."

Also expressing "serious disagreement" with the recommendation, Crocker Snow, director of the Massachusetts Aeronautics Commission and chairman of a special committee which presented NASAO's ideas to General Jimmy Doolittle's group, made this comment:

"We object to this on the grounds that (1) it is unnecessary for safety, because if CAA determines that an airport used by interstate carriers is unsafe it may withdraw the carrier's right to use the airport, which is an indirect, but very effective, means of safety regulation, since without airlines a large civil air terminal is not much of an asset; (2) it would require, for effective enforcement, substantially increased Federal payrolls and expenses; and (3) it is in conflict with the long accepted, but recently harassed, political relationship between the states and their offspring, the United States."

Meadows and Snow agreed that the Commission was wise in asking that the authority of Federal, state, and municipal governments with respect to the regulation of the use of air space be clarified, but Snow said that NASAO believes "that such clarification may be beyond the powers of Congress, and may require a decision of the Supreme Court."

On the recommendation that land use in low flight areas near busy airports should be guided, and the maintenance of hazards in such areas controlled, through the establishment of effective zoning at the state and local level, NASAO found itself in agreement with the Commission. Meadows approved the recommendation in principle but said: "Twenty-five years of experience with this problem dictates to us that no zoning law is or can be made effective; the only answer is outright purchase of air easement or land itself."

One recommendation on which the AAAE president found his group in hearty accord was the one recommending an expansion of the Federal-aid airport program.

"Many civil airports feel that the government has acted in bad faith," he commented, "by failing to provide funds under the Federal Airport Act program. The Department of Commerce is presently withholding from Congress a request for $25,000,000 of such aid while local subdivisions of government have $52,000,000 on tap to match Federal grants for airport improvements.

Runway Aid

"Runways are necessary and within limits will be provided, but they cost money and earn none; Federal aid should include terminal buildings and hangars which earn money and could help support the cost of construction and maintenance of runways.

"It is our opinion that the local sponsors of public airports will be able and willing to match $75,000,000 of Federal funds, if made available, each year for the next four years.

Both NASO and AAAE agreed with the Doolittle Commission's recommendations calling for such actions as:

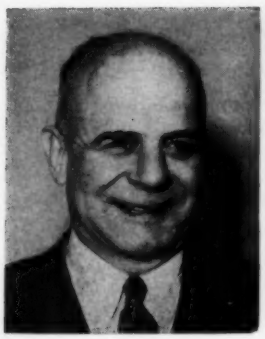
- **Integration** of municipal and airport operator planning.
- **Acceleration** of installation of aids to air navigation.
- **Continued support** for required airport development and continued improvement of existing airports.

Meadows said AAAE, "in the interest of economy and practicability," approves the recommendation for extended use of the single runway or uni-directional runway system, while Snow pointed out that NASAO pioneered the single runway philosophy

How It Strikes Them

Reactions of industry leaders to the report

- **Serious disagreement with recommendation that the Federal government certificate airports.**
- **Zoning is fine in theory, ineffective in practice.**
- **Except in case of war, civil flying should receive first consideration on civil airports.**
- **Uni-directional runway program is OK but cross-wind landing criteria must be reevaluated.**
- **Federal aid to airports should be increased and extended to cover terminals and hangars.**



Harris & Ewing

James H. Doolittle Charles F. Horne Jerome C. Hunsaker

Members of Airport Commission

but has consistently criticized air carrier crosswind landing criteria and limitations.

Meadows would not comment on the proposal to revise and liberalize present crosswind component limits on the ground that this is an operational problem, but on the point of further development and use of crosswind landing gear, he said:

"For safety of aircraft and economy of construction and operation of airports, we approve the recommendation."

He would not go along, however, with the recommendation that runway lengths be brought up to established standards. Compliance with this, he said, would cost "a huge sum of money," and the expenditure could be avoided if the airlines would specify and the aircraft manufacturers build transport planes requiring less instead of increasingly greater runway lengths.

Takes Issue

In his comment, Snow said NASAO must take issue with the statement in the report that "definite traffic patterns have been established by the CAA at every major terminal airport in the country," and the inference that such patterns included "efforts to reduce ground hazard and noise."

"Actually," he said, "before the Newark-New York episodes, the only comprehensive patterns designed effectively to reduce ground hazard and noise were adopted and enforced by state and local governments. The preferential runway plan presently being promoted by the CAA is at best a stop gap; it is entirely voluntary, and is not applicable in bad weather, when the most serious conditions may exist."

On the subject of noise the Commission made several recommendations on which the airlines were expected to comment through ATA. These included:

• **Acceleration** of programs for the muffling and abatement of noises made by planes while warming up or taxiing on the ground.

• **Instruction** of flight personnel concerning nuisance factors.

• **Arrangement** of flight patterns so as to reduce the noise nuisance to persons on the ground.

Both Meadows and Snow commented on the recommendation covering separation of military and civil flying at congested airports. Said the AAAE official:

"Unless it is a case of the military using its prerogative to relegate civil flying out of existence, civil flying should receive first consideration on civil airports except in case of war. The two should never be based together on congested airports."

Snow said NASAO recognizes the need for more centralized control of some aspects of not only civil but military airports and had recommended in this connection that:

• **The Airspace Subcommittee** and the Airport Use Panel of the Air Coordinating Committee should be combined;

• **The location** and orientation of domestic military airports, and of civil airports intended for integration into the Federal radio and radar airways systems, should be subject to approval by the combined committees.

Some other Doolittle Commission recommendations on which the airlines were expected to comment included:

• **Raising of circling and maneuvering minimums.** "Present straight-in instrument approach minimums are considered satisfactory, but the minimum ceilings and visibilities under which aircraft are permitted to circle or maneuver under the overcast in congested terminal areas should be raised."

• **More flight crew training.** "Every flight crew should be required to have frequent drills in instrument and emergency procedures. This can be accomplished in part in flight simulators . . . located at convenient points and available to all operators on a fair basis."

• **Positive traffic control.** CAA should maintain positive air traffic control in areas of high traffic density, regardless of weather.

Certain to draw comment from groups representing political subdivisions were the Commission's recommendations pertaining to zoning and runway approach protection. One such recommendation suggested that, "The dominant runways of new airport projects should be protected by cleared extensions at each end of at least one half-mile in length and 1,000 feet wide . . . [and] such extensions should be considered an integral part of the airport."

As a further step, the Commission recommends the zoning of approach areas, restricting new construction in fan-shaped zones extending outward from the ends of runways for a distance of two miles and spreading to 6,000 feet in width at the outer limit.

The above summary furnishes some idea of the comprehensiveness of the Doolittle Commission's report, and the quoted comments of Crocker Snow and Cecil Meadows furnish some indication as to how extensive and how varied the reaction may be when all segments of the aviation industry have had ample opportunity to study the full report, analyze the philosophy and technical reasoning behind the sundry recommendations, and weigh the implications of the proposals.

Comprehensive

While there might be disagreement with some of its specific points, there is not likely to be anything but agreement that Jimmy Doolittle and his group have done a thorough and comprehensive job in the 90 days allotted to them for completion of their study and preparation of their recommendations.

In preparing the report, the group consulted with 250 or more individuals, received written or oral statements from 38 organizations, visited 30 major airports, and collected, compiled, and analyzed the views and opinions of 75 municipal governments on the past, present, and future of their airports.

Besides Doolittle, the Commission was composed of Charles F. Horne, Civil Aeronautics Administrator, and Dr. Jerome C. Hunsaker, chairman of the National Advisory Committee for Aeronautics. Most of the detailed work in compiling the report was done by technical advisers and consultants under the direction of S. Paul Johnston, executive director.

Technical advisers to the Commission were: Capt. W. P. Cogswell, USN; Col. T. R. Milton, USAF; J. W. Crowley, Jr., NACA; A. D'Arcy Harvey, CAB; and Philip A. Hahn, CAA. Consultants were Cornell Aeronautical Laboratories, L. Welch Pogue, John C. Cooper, and Adams, Howard & Greeley. Richard W. Johnston was editorial adviser.

Liability Insurance Issue Forced by CAB

Small lines to be hit hard by CAB passenger and public liability plan being readied for summer start.

By William V. Henzey

MANDATORY requirement for passenger and public liability insurance, now being proposed by the Civil Aeronautics Board, will threaten the life of many small charter operators and seriously affect most of the non-scheduled airlines. The scheduled certificated lines, such as the scheduled domestic operators who pay some $6 million per year in liability insurance now, will not be seriously affected.

Survey Results

Basically this is how irregular and charter operators will be affected, according to a 1950 CAB survey:

• **Twelve of 50** large irregulars will have to carry insurance for the first time, the remainder will have to increase their present policies. Cost, based on 0.5 mills per pasenger-mile, will range from $12,000 to $75,000 per year. Results could range from lowering the profit margins to forced termination of operation.

• **Charter operators** of the small irregular type will be forced to pay about $600 per plane per year for this type protection, a sum which they claim may put many out of business. At least half of the 2,321 small irregular type carriers would have this expense for the first time, while another 500 would need increased coverage.

• **U. S. scheduled** certificated operators would not be seriously affected. Their insurance programs would have to be realigned to meet CAB requirements.

Minimum required coverage would be $25,000 passenger liability per person per accident, $25,000 public bodily injury liability per person and $250,000 per accident, and $250,000 property damage per accident. For aircraft under 12,500 pounds maximum certificated take-off weight, minimum coverage would be $100,000 per accident for public bodily injury and property damage.

Plight of the small fixed-base operator was emphasized by Glenn Tabor, director, division of aeronautics, Kansas Industrial Development Commission, who told CAB that if the rule is adopted "quite a number of the flight operators in Kansas will quit the business . . . because they cannot afford it."

According to Tabor there are a number of charter operators in small towns with one airplane that make most of their money in spraying and farming. "If they are forced to carry insurance in the amount CAB proposes," Tabor said, "they will simply quit doing charter work." The real sufferers, he added, will be the communities with no other form of commercial air transportation.

Agreeing with Tabor was Dan Augustine, head of Augustine Aviation Co., of Britton, S. D. (pop. 1,600), who wrote CAB that "Insurance is too expensive for small aviation businesses like ours. Careful flying and maintenance have been our practice and we have had no serious accidents. The insurance premiums over the five year period we have been at this location would have been considerably more than the money we have made."

Except by speculative calculation, the added expenditures necessary to meet proposed minimum coverages are undeterminable since liability insurance premiums of airlines are closely-guarded secrets determined in private negotiations between the carriers and their insurance companies.

But reducing total liability insurance payments of the 16 domestic trunk carriers for 1951 (over $6 million), as reported to CAB, to a rate per revenue passenger-mile, indicates average payments range around 0.5 mills per passenger-mile.

Mr. Tabor estimated the small operator would have to pay about $600 a year per plane if CAB's rule goes through in its present form. For the large irregular carrier, utilizing the 0.5 mills figure, average anual payment would be approximately $12,000, although ranging in some individual cases as high as $75,000.

Questionable

With some large irregulars in a questionable financial position to meet Federal transportation tax liabilities, there is some doubt as to their ability to meet the further expense of liability insurance. There may, consequently, be some casualties in their ranks as a result of the compulsory rule.

But to those who feel the CAB proposal is too stiff from a financial viewpoint, there may be some solace in the fact that CAB has consistently emphasized the tentative nature of the program as drawn, an indication that the final rule will be constructed with the best interests of the industry and the public in mind.

CAB decided on its program after numerous independent studies and after canvassing the U. S. air transport industry with respect to current insurance coverage. CAB special studies expert Wendall Herrington estimates that over 2,500 carriers were circularized, with 1,313 replying.

After reviewing the replies, the Board concluded: "Notwithstanding the financial ability of most air transport enterprises to meet such liability as they are likely to incur, there are enough not so favorably situated to justify a formal insurance requirement for protection of the public. Moreover, the proposed regulation would serve to protect the assets of air carriers against the effects which losses from accidents might otherwise have, and thus help assure the continued safety and quality of their services."

The program, which CAB says it is "firmly resolved" to put into effect, will be in the form of a new economic regulation. It will require insurance firms to file certificates with the Board indicating that the required insurance is in effect.

No Basic Argument

The Aircoach Transport Association, large irregular carrier trade organization, indicated it would not comment on the proposed rule. Spokesmen for the scheduled industry said they have basically no argument with the plan, but that certain specific items would be commented upon. One of these is the CAB proposal for fixing the minimum passenger liability per accident at $25,000 times the number of seats. Some limit may be requested on that score, since new coach flights are carrying 70 and 80 passengers and future equipment will carry more.

The position of insurance firms may have been summed up by this statement made to the Board by Jack H. Quick, manager, aviation department, The Ohio Casualty Insurance Co., Hamilton, Ohio: "We accept the fact that similar insurance requirements are already placed upon surface carriers and it would appear equitable that similar conditions be placed upon air carriers."

CAB Chairman Donald W. Nyrop likened the plan to state laws which require automobile owners to carry a fixed amount of liability insurance.

In effect, CAB is reaching a point forecast by an earlier panel of members in 1944, which said, "Although the total premium volume in aviation insurance is not large when compared with that in the older lines of insurance, it seems clear that this category of insurance will become increasingly important in the future."

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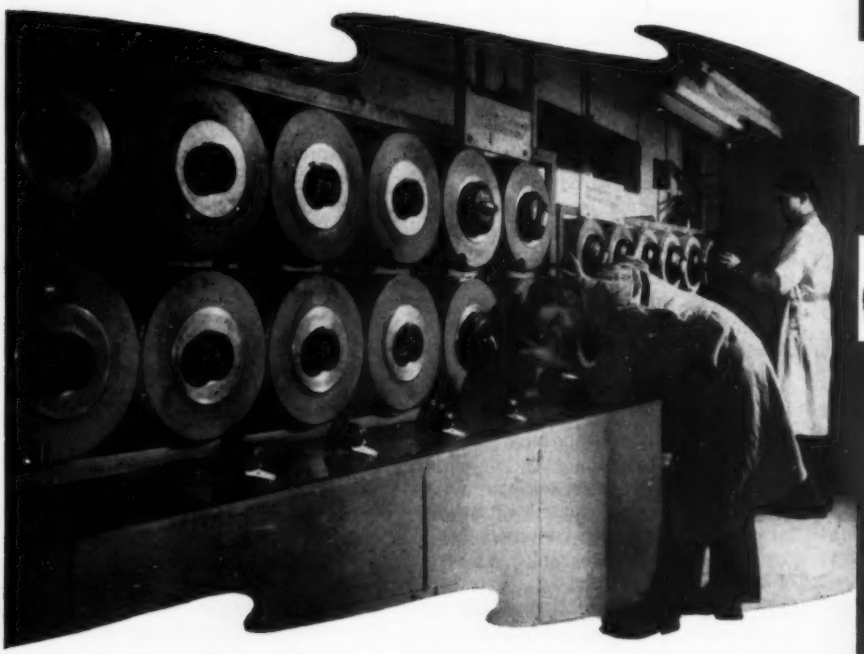

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New Developments Promise Better DME

As current distance measuring equipment is readied, ANDB is already finding ways to improve designs.

By ROBERT M. LOEBELSON

(Second of two articles)

ALTHOUGH ground equipment for accurate determination of a plane's distance from a given station is being mass produced and airborne interrogators are nearing flight tests (AMERICAN AVIATION, May 12), the Commerce Department's Air Navigation Development Board is thinking beyond present equipment. ANDB already has sponsored several development contracts to modify and/or replace ground equipment and airborne interrogators so that the ultimate distance measuring equipment (DME) system will be an accurate, foolproof, inexpensive sending-receiving network.

First of these ANDB-financed contracts, administered by the Army Signal Corps, is with Westinghouse Electric Corp. It calls for a Master Oscillator Power Amplifier Transmitter (MOPAT) which will become a part of the Hazeltine ground equipment. This crystal controlled "klystron" transponder is expected to result in more power (making less power necessary in the plane equipment); improved frequency stability (creating more channels if necessary); and pulse shape improvement (making for clearer reception).

Klystron Tube

Base of this Westinghouse transponder is the klystron tube developed by The Sperry Corp., which is expected to be delivered in the next 60 days. This MOPAT, which may offer the solution to high power requirements, would use the entire receiver, decoders, and other equipment found in the Hazeltine production ground equipment and would merely replace the transponder, which relays the signal from the plane back to the plane's antenna. The time required for the radio signal's trip from the plane to the ground station and back to the plane determines the distance

ANDB's investment in the Westinghouse-Sperry transponder was a $120,679 development contract. If the unit lives up to expectations, it will result in a power factor improvement of three or four and something in the order of a six decibel improvement in sound volume. The Signal Corps is administering this project because it is responsible for all basic tube developments for the military services.

MODEL AT LEFT is a Hazeltine lightweight airborne DME interrogator designed for use in lightplanes and will soon undergo CAA evaluation tests. It is expected to go into mass production.

In approach aimed at sharply reducing the size, weight, cost, and power of the airborne interrogator, ANDB is sponsoring a $30,000 development contract at CAA's Technical Development and Evaluation Center at Indianapolis for an amplifier based on new tube designs. This amplifier, which, it is hoped, will attain a five to six decibel improvement, will be located in front of the ground receiver and will thus be able to detect a comparatively weak signal from the plane. This system would cut the need for airborne power by a power factor of approximately four.

Still another approach is contained in an ANDB contract for $30,500 placed with the Wright Air Development Center at Dayton, Ohio. This calls for a dual antenna, with one to be usually located below the plane. One antenna may handle most transmitting-receiving jobs, but in critical situations the automatic switch, which changes from one antenna to the other, may prove helpful.

Thus if the signal being received from the ground station starts fading, the automatic switch will change over to the second antenna to see if it is obtaining a better signal. After making the comparison, the device fixes on the antenna receiving the better signal. This development is nearly perfected.

One problem that always arises when new airborne electronic equipment is being developed is the need for auxiliary equipment to test it without the necessity for expensive flying time. To help overcome this difficulty, ANDB has awarded WADC at Dayton a $137,984 contract for new ramp test equipment. This will permit checking of 10 of the 100 channels in DME equipment for performance characteristics, including:

- **Frequencies.**
- **Modes and pulse spacings.**
- **Range accuracy.**

At the same time that ANDB is looking to the future, it has also set down firm requirements for the airborne interrogators being built by Hazeltine, Narco, and Stavid. The TDEC specifications to which the Stavid miniaturized set must conform include:

- **Size**—Enclosable in a standard A1-D case in accordance with military specification JAN-C-172A with allowable projections.
- **Weight**—Not over 35 pounds.
- **Life**—Not less than 5,000 hours.
- **Frequencies** — One hundred operating channels by pairing 10 receiver and 10 transmitter frequencies. All interrogation frequencies must fall within the 960-987.25 megacycle range; all reply channels must be between 1178.25-1215 megacycles. A 2.5 megacycle separation between adjacent radio frequency assignments must be used in both bands.
- **Modes**—Double pulses must be used for both interrogation and reply to insure non-interference between operating channels. Ten discrete, double-pulse spacings must be provided.
- **Accuracy**—In the presence of maximum fruit conditions (disturbance due to electrical interference), total electrical and mechanical error must not exceed plus or minus 0.15 nautical miles plus 0.25 of 1% of the true distance in nautical miles.
- **Aircraft speed**—Distance measurements must be possible in planes flying up to 1,000 miles per hour.
- **Range of operations**—Measurements between zero and 199 miles are required.
- **Memory**—A simple range memory lasting eight to 12 seconds after loss of signal or change of operating channel which has not been present for at least 15 seconds is required. Range indication must not drift more than plus or minus one-fourth mile during memory.
- **Searching**—Successful search (picking up the distance to a transponder) must be obtained with a 90% probability in one search attempt when tried under normal fruit conditions.

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Pratt & Whitney Aircraft Teams Up With Licensees To Speed Supply of Aircraft Engines

"TEAMING UP" with other industries to produce more aircraft engines is not a new concept at Pratt & Whitney. The idea of licensing outside manufacturers was pioneered and developed into a practical system right here during World War II. It worked so well that Pratt & Whitney and its licensees produced almost half of all the horsepower used by Allied combat planes.

And now—at no profit to itself—Pratt & Whitney Aircraft is again building up another team of licensees. In the interest of national defense, this company is sharing the fruits of its research and its hard-earned production knowledge with—

The Ford Motor Company. This company is now swinging into production on the Wasp Major piston engine, which powers the Convair B-36F bomber, the Douglas C-124, Boeing C-97 and Fairchild C-119 transports for the Air Force. Ford has also been licensed to build the big axial-flow J-57 Turbo-Wasp jet engine, which will power the Air Force's Boeing B-52 and Convair B-60 bombers as well as other combat craft still under security restrictions.

The Chrysler Corporation. The Dodge division has been licensed to produce the J-48 Turbo-Wasp jet engine and the DeSoto division will build afterburners, for this power plant. The J-48 powers the Navy's Grumman F9F-5 Panther and swept-wing F9F-6 Cougar fighters and the Air Force's all-weather interceptor, the Lockheed F94-C.

Nash-Kelvinator Corporation. Licensed to build the Double Wasp piston engine, which powers the Navy's North American AJ-1 Savage bomber, Grumman Guardian anti-submarine airplane and Vought Corsair fighter. This engine also is used in the Air Force's Convair T-29 and Beech T-36 transport trainers and the Chase C-123 and Douglas C-118A and R6D-1 transports, as well as in new large helicopters.

Canadian Pratt & Whitney Aircraft Ltd. This subsidiary of United Aircraft Corporation will build the 600 h.p. Wasp engine in a brand new plant now nearing completion at Longueuil, Quebec. The Wasp will power the de Havilland Otter transport and the Canadian-built T-6 trainer.

Supplementing Pratt & Whitney's own greatly expanded production, these outstanding companies will put their manufacturing know-how to work to produce the large quantity of Pratt & Whitney engines needed for the defense effort.

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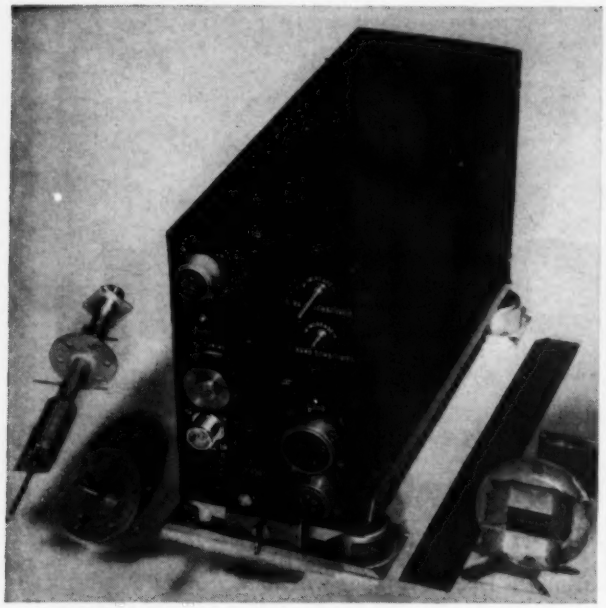

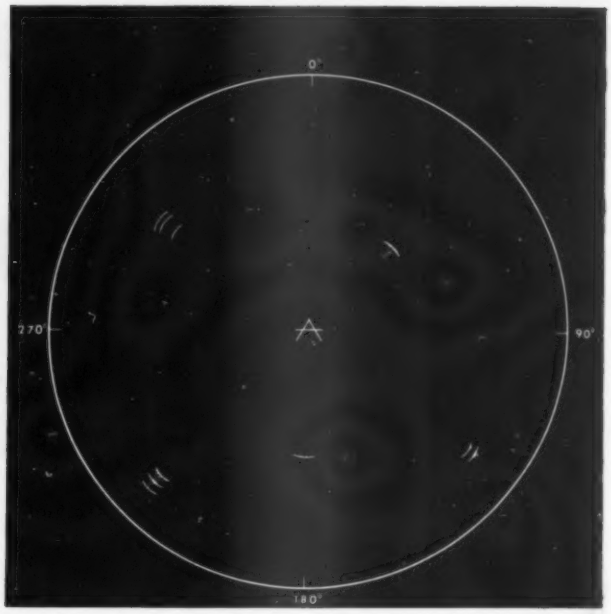

AIRBORNE SAFETY BEACON, left, strengthens the radar signals, improving range, and identifies on the scope the aircraft with which the controller is communicating. Pressing of mike button by pilot provides codified blip on scope, at right.

ANDB Development Projects Described

The Air Navigation Development Board was established to formulate a unified program for research on, and development of, aids for a common national system of air navigation and traffic control to serve the needs of civilian and nontactical military aviation yet capable of useful integration with any air defense system.

This is a broad directive and the activities of ANDB are equally broad. Most of the work is done outside of the agency through contracts let through and to the ANDB membership to the CAA, U. S. Air Force, and many private organizations. The following material is a brief account of ANDB's major unclassified projects as prepared especially for AMERICAN AVIATION by Bert A. Denicke, executive secretary of ANDB.

DEVELOPMENT PROJECTS

Air Traffic Coordinating Equipment (ATCOE)

Objective: The development of a system of processing traffic control information, such as flight plans, position reports, clearances, etc., automatically and in great volume. Development of two components of this equipment is now progressing. These are a magnetic-drum memory system for storing flight-plan information and an indicator system capable of displaying letter and number symbols in response either to teletype or manual inputs.

An automatic teletype switching system suitable for the interconnection of a number of these storage and display units at various locations is contemplated for development. The limited data transfer and display equipment outlined in the Air Coordinating Committee's Operational Policy Group Report "Air Traffic Control and the National Security," December, 1950, will be derived from the indicator system mentioned above.

Radar Safety Beacon

Objective: The development of a complete airborne beacon system for traffic control. In the first equipment to be investigated, interrogation of the airborne beacon will be accomplished by a single pulse from an S-band radar. Evaluation tests now beginning will determine whether the reply will be at a near S-band frequency or at L-band frequency. The reply signal includes provisions for simple identification of the aircraft.

When operating with a precision approach radar (PAR) the interrogation will be accomplished by single pulses from that radar and replies will be made either on L- or S-bands.

The principal function of this beacon system is to extend the range of the radar, provide solid coverage even in conditions of heavy rain, and provide a means for identifying aircraft appearing on radars. These functions are considered to be vital to radar traffic control.

The first group of development models of the beacon have been delivered to TDEC (Technical Development and Evaluation Center) for evaluation. The beacon weighs 17½ pounds, including the accessories, and is 9″ x 6″ x 14″ in size. The range is 100 nautical miles using the airport surveillance radar (ASR) and 20 nautical miles with PAR.

Improved Air Traffic Control Communications

Objective: The development of a breadboard model of a visual-symbolic air-ground communications system capable of handling the message content outlined in the ACC air traffic control report of December, 1950, for the air traffic control signalling system. However, the size, weight, and speed of operation will be short of the requirements specified therein.

This equipment will be used in air-ground communication during flight tests to explore certain problems associated with its use. A second phase of this project includes the provision of six airborne-type display units and six corresponding units for a ground traffic

controller, to be installed in the terminal-area traffic control simulator at TDEC for evaluation under simulated conditions.

1000 Mc Ground Master Oscillator Power Amplifier Transmitter

Objective: Extension of the range of the ground-to-air DME (Distance Measuring Equipment) reply path. This is a complete transmitter for 1000 megacycle DME. The rf frequency is crystal-controlled and the final power output stage is a newly developed klystron amplifier, the Sperry SAL-39.

The equipment is designed in such a manner that it can easily replace the transmitter section of a standard DME. It will operate between 988.5 and 1215 megacycles with a peak power output of 16 kilowatts and a 1% duty cycle. The frequency stability is to be better than 0.005%.

Directional VHF Localizer Array

Objective: Provision of suitable localizer courses at sites for which standard Instrument Landing System (ILS) localizer equipment is unsuitable because of the magnitude of beam bends. This equipment includes a highly directional antenna system which generates two narrow overlapping beams, the common area of which is the desired localizer path. Special provisions are used to provide desired airborne indication when the aircraft is out of the two highly directional beams.

Improved Flare-Out Altimeter

Objective: An FM altimeter operating in the range 4200 to 4400 megacycles, plus computing circuits required to generate control signals necessary to maintain an aircraft on an exponential flare-out path after descending below an altitude of approximately 50 feet.

Pictorial Situation Display Equipment for Evaluation Purposes

Objective: A means of televising certain control information on the ground and relaying it to a television receiver in an aircraft. The airborne unit includes a storage tube which makes it possible to present to the pilot a continuous picture containing the control information from signals which are sent only at spaced intervals of time.

This type of operation provides the basic means for time-multiplexing information to a number of aircraft simultaneously. The equipment is now being delivered to TDEC in Indianapolis for evaluation.

Bright Tube Displays

Objective: Provision of equipment so that controllers can view a radar display under normal room-lighting conditions. The project provides for the development of a bright display tube for

Whats inside?

● Inside these two buildings is a complete subcontracting shop—specializing in stainless steel fabrication. What's it got? Special Engineering Staff—Equipment for spot, seam, heliarc and oxyacetylene welding—Dies, jigs and fixtures for a great variety of parts—Microscopic and mechanical inspection equipment—these are the fundamentals! Add the experience of our operating technicians and you get some idea of the facilities that have earned us an industry-wide reputation as a truly unique and reliable subcontractor.

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Sperry research engineers are seeking solutions for tomorrow's flight control problems while they develop new ways to better the performance of control equipment currently flying.

This analog computer is duplicating flight conditions of a new high-performance jet bomber being "flown" automatically by the Gyropilot* flight control. Here, for instance, a Sperry engineer checks the performance of the airplane and automatic pilot during the bombing run.

In test after test – in laboratory and its great Flight Research Center, MacArthur Field, Long Island—Sperry flight controls are continuing to prove their capacity to maintain stable all-weather flight in jet, propeller-driven, rotary-wing, lighter-than-air and pilotless aircraft.

For 40 years Sperry has been working continually on flight control problems. With this wealth of experience to build on, tomorrow's problems are being met by today's research and engineering.

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both the ASR and the PAR. The Position Plan Indicator (PPI) video information is stored on a graphecon storage tube using the standard PPI scan and the information is then extracted from the tube with a television raster scan and relayed to a number of television type displays. These will have brightness corresponding to the best television practice.

Pictorial Computer

Objective: The development of several devices which use as their inputs azimuth and distance information obtained from the Very High Frequency Omni Range (VOR) and the DME and provide as an output the aircraft-position information on a map-type indicator. All of the indicators are suitable for use in the cockpit by the pilot.

Preliminary evaluation results indicate that this type of display eases many of the pilot's navigation problems; for example, it is possible to draw any desired course on the map and simply navigate the aircraft to follow that course. It is believed that this type of device can simplify certain traffic control problems by providing a number of fixed courses, any one of which can be assigned to a particular aircraft by the traffic controller.

Airborne Antenna R-F Switch for Distance Measuring Equipment

Objective: An R-F switch to enable diversity reception and transmission on DME. Flight tests and model-range antenna tests have shown that on aircraft the size of a DC-3 or larger, one antenna location for DME will not guarantee continuous coverage during certain maneuvers. The R-F switch will be designed to operate from the memory circuit in the DME interrogator. The DME will normally search, using the primary antenna, with no provision for switching to the secondary antenna during the searching operation.

If the signal is lost during tracking, the antenna switch will cut in the secondary antenna in an attempt to regain the signal before the memory time is over and searching is renewed. Similarly, if the signal is lost while the equipment is connected to the secondary antenna, the reverse switching operation will take place.

DME Ramp Test Equipment

Objective: A portable equipment suitable for making a fairly complete operational check of DME equipment while it is installed in the aircraft. The frequency, power output, and sensitivity of each of the interrogation and reply channels can be checked; the spacing of the pulse pairs used to form the modes and the distance scale can also be checked. The tests cover overall operation of the DME, including the aircraft

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antenna.

Miniaturized DME Interrogator

Objective: Provision of a miniaturized version of the standard airborne DME interrogator that will meet military requirements. This miniaturized interrogator will be a companion to the miniaturized navigation receiver. The miniaturized DME interrogator will be designed to give high performance with all of the automatic features contained in the standard interrogator. Effort will be placed on sub-miniaturization of the various components, including the use of printed circuits and potted components. The unit will weigh 25 pounds and occupy one-half an Aviation Transmitter Receiver rack. Equipment is scheduled for delivery in July of 1952, and evaluation is expected to be completed by January, 1953.

Lightweight DME Interrogator

Objective: To develop a lightweight DME interrogator suitable as a companion piece to the private aircraft type navigation receivers. This miniaturized interrogator will be designed for somewhat less performance than the standard DME interrogator (AN/APN-34). Emphasis will be placed on reduced weight and costs, substituting more manual operations for automatic performance, and making use of a simplified display. Little effort will be put on sub-miniaturization unless it will aid in reducing the cost. The weight will be 20 pounds. Equipment is scheduled for delivery in July of 1952, and evaluation is expected to be completed by January, 1953.

BASIC STUDIES

Aircraft and Communication Measurements

Objective: To determine the variations which exist in the performance of aircraft of the same and different types during routine approach operations and to determine insofar as possible the reasons for these variations. It is also intended to provide a quantitative description of the communication problem incident to the control of traffic at busy air terminals.

Aircraft on final approach will be tracked by radar and optical means at three airports. Deviations of individual paths and speed programs from reasonable norms will be analyzed. Attempts will be made to correlate these deviations with such pertinent factors as can be measured including weather, pilot proficiency, aircraft type, traffic conditions, communication load, etc. Measurements at the first two airports will be made under conditions typical of busy airports. The third set of aircraft measurements may include studies of the effect of certain new facilities and procedures on the behavior of aircraft on final ap-

proach. All communications with the aircraft will be recorded during these operations. These data will be used to analyze communications problems which arise at busy air terminals.

Final Approach Visibility Studies

Objective: Research and development regarding the improvement of methods for accurately and continuously determining visibility parameters important to the operation and control of aircraft during final approach and landing.

Propagation in the 960-1600 Mc Region

Objective: Determination of the exact propagation characteristics of radiation in the 960-1600 megacycle range, so that any peculiarities may be taken into account in developmental planning for the Common System equipments which will operate at these frequencies.

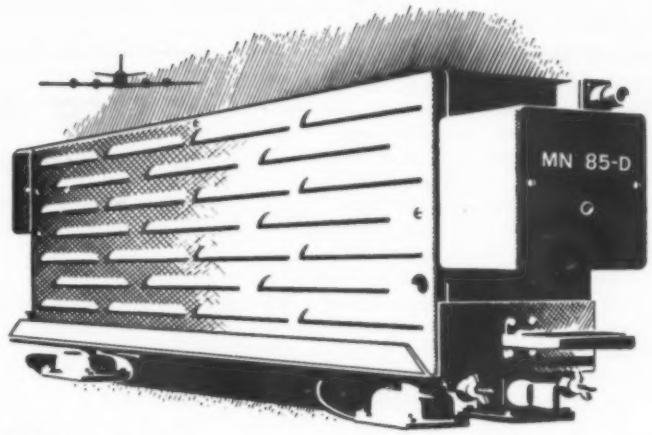
This project to date has consisted largely of the establishment of an experimental propagation path between the top of Cheyenne Mountain, Colorado, and a number of receiving points on the plains of eastern Colorado and western Kansas. Limited samples of data for both summer and winter conditions have been obtained on this path for various distances out to several hundred miles beyond the normal radio horizon for a frequency of 1047 mc. It is planned to continue these measurements for approximately one year and to obtain some data for the case wherein the receiver is in an aircraft and the transmitter on the mountain.

Future work contemplated includes measurements in a part of the country having different meteorological conditions and large air-traffic volume.

Aircraft Antennas

Objective: The achievement of improved radiation patterns for omnidirectional aircraft antennas in the band 1000 to 3000 megacycles. The work is divided into two phases as follows:

- A program of research and development leading to the realization of a method and the delineation of suitable equipment for the accurate measurement of radiation patterns of omnidirectional antennas mounted on aircraft or aircraft models in the frequency range of 1000 to 3000 megacycles for aircraft having maximum dimensions up to 200 feet.
- A research and development program leading to the realization of aircraft antenna systems design and location, to insure reliable operation of navigation and traffic control functions at frequencies of 1000 to 3000 mcs. The antenna system must be capable of providing optimum coverage through the solid angle about an aircraft through which air-ground transmission paths must be maintained for all normal atti-



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The Bendix MN-85D VHF Receiver, pictured above, is the heart of the NA-3A Navigation System. It combines unexcelled performance with simplicity of design and ease of maintenance.

Finger-tip selection of 280 crystal-controlled localizer, VAR, VOR, and civil aviation communication channels.

Picture navigation with the Bendix Radio Omni-Mag, a simple indicator which provides selection of course line and automatically shows aircraft position and heading deviation from that line.

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tudes assumed in non-tactical flight.

Experimental Measuring Apparatus for Ultimate PAR

Objective: Determination of the optimum method for ground measurement of the performance of new final approach and landing systems. The project is in two phases: A study phase, and the development of the model equipment. The final report on the study phase includes three separate proposals:

- The radio-only method: Suitable for all-weather operation, with automatic data handling, not too accurate (1 mil), and requires complex equipment.
- The optical-only method: High accuracy (1/10 to 2/10 mil), moderate equipment complexity, laborious data reduction, and not suitable for all-weather operation.
- The radio-optical method: Good accuracy (approximately 2/10 mil), easier data reduction than the optical-only method, moderate equipment complexity, and not suitable for all-weather conditions.

There are no plans at this time to go ahead with the development of equipments for any of these methods:

EVALUATION

ANDB sponsors two major evaluation programs: Evaluation of traffic control aids supervised by the CAA Technical Development and Evaluation Center at Indianapolis, and evaluation of navigation aids, supervised by the U. S. Air Force All Weather Section at the Wright Air Development Center.

Evaluation of Air Traffic Control Aids:

Evaluation of airport surveillance radar; airport surface detection equipment (ASDE); radar safety beacon; pictorial computers; traffic control modifications to the PAR-1 Type of precision approach radar; and evaluation of pictorial situation display.

In addition to these projects, which are aimed at an objective technical and operational evaluation of the respective equipments, a simulation project is maintained at Indianapolis. Through this process of dynamic simulation of traffic control problems, the factors which determine the acceptance rate of terminal areas are readily determined. In addition, the simulator has proved to be of great assistance in determining the best procedures for handling traffic at present air terminals, such as Washington and Chicago. All facilities within the terminal being studied are simulated, and various control problems are worked out and the optimum procedure is found.

Navigation Aids Evaluation Center:

About ten classified evaluation projects are being conducted by the All Weather Section.

Extra Section

By William D. Perreault

HOW MANY passengers does an airline pilot play chauffeur to during his career? Seems like a remote question, but one airline pilot, American Airlines' **Captain George L. Govoni,** has a pretty good idea. In 16 years with American he has flown 185,185 passengers. When he started his career with AAL the law required that pilots enter the number of passengers on each trip in their log books. When the law dropped George continued to keep count. He figures he'll pass the quarter-million mark in about two years.

•

Copies of the new pronouncing alphabet for airmen, the one adopted by the International Civil Aviation Organization, have been printed on a wallet-sized card by the Monsanto Chemical Company, 1700 So. Second St., St. Louis 4, Missouri. Whether or not you approve of the new alphabet, and there are plenty of pilots who don't, you'll find this card interesting and useful. It's available free.

•

CAA has notified all airmen that they should not use amphetamine or its derivatives, especially in the high dosages employed for weight reducing, because its action on the central nervous system may have dangerous effects. Derivatives of amphetamine include benzedrine and dexedrine. Dangerous effect depends on size of the dosage and susceptibility of the individual to the drug. Even in small dosages, CAA's **Dr. W. R. Stovall** says, they increase anxiety and excitability and are detrimental to good piloting. We note that this information, like earlier warnings about other drugs, was circulated for release about a week after it arrived. If such dangers exist it would seem critical to speed the word.

•

Masahiro Tohgi, claimed to be the first Japanese pilot to receive flight training on the Pacific Coast since 1941, is taking a six months course at Taloa Academy of Aeronautics in Oakland, Calif. An interesting side-light of Toghi's training is Miss Kiku Hori, an American-born Japanese girl, who has been assigned as a full-time shadow for Tohgi during his regular schooling hours and even in the evenings. Normally a quiet shadow, Miss Hori is always nearby to help Toghi when the language problem gets out of hand.

•

Setting an interesting and worthwhile precedent during the Festival of Britain last year, the British Government dispensed with the requirement that private pilots of other ICAO countries have their certificates validated in order to fly in Britain. The move was very successful. The Association of British Aero Clubs and Centres extended invitations to overseas clubs to become honorary members and 50 foreign pilots used the waiver concession. Results were so good that the experiment will be continued this year and considered for permanent adoption. Britain is believed to be the first country to make such simple arrangements for private pilots.

•

If you have any interest in aircraft fuels and oils, and who doesn't, you'll find the April issue of *Lubrication,* house organ of The Texas Company, a worthwhile publication to read and file. It reviews a half-century of flight with considerable general information on the era (growth by number of operators; aircraft by number; passengers carried; fuel costs in cents per plane-mile and ton-mile; etc.) and a wealth of information on past, present, and future fuel requirements. Address: The Texas Co., 135 East 42nd St., New York 17, N. Y.

E. Merritt Anderson, Anderson Air Activities, Malden Air Base, Mo., is the new president of the Aeronautical Training Society, elected at the close of the society's annual meeting held in Washington recently. Outgoing president, Capt. Maxwell W. Balfour, will serve as vice president, while Wayne Weishaar, secretary-treasurer, was reelected.

$100 Minimum Proposed For Accident Reports

Plane owners will have to report accidents causing a minimum damage of $100 to aircraft, if the proposed amendment to CAR Part 62, under consideration by CAB, is put through. There has been some misunderstanding on what was meant by "substantial damage" in the original provision, and the new proposal is meant to clarify the phrase.

Many owners and operators have been reporting accidents only when personnel injuries have been involved. CAB has set June 23 as the deadline for comments, suggestions, or criticisms.

Contest Winners Named

S. M. Serebreny of Pan American World Airways received first prize of $250 for his paper "Some Preliminary Considerations of Jet Stream over Japan" entered in the Air Transport Association 1951 contest for airline employes in research having a practical application to weather analysis, weather forecasting or aircraft dispatching.

American Airlines' Ralph I. Meeker, Jr., first prize-winner in 1950 contest, received second prize of $150 for "A Simple Kinematic Method for Forecasting the Motion of High Level Cyclones." Third prize went to Charles D. Unger of American Airlines for "A Study of Fog and Stratus at the Los Angeles International Airport." Peter E. Kraght, also of AA, received honorable mention for "Temperature and Moisture Gradients Under Low Stratus Clouds."

New VHF Airways In Use

June 1 saw the addition of 45,000 miles of VHF airways in the U. S., supplementing the existing 65,000 miles of low-frequency airways currently in operation.

To be flown by omnirange, stations are located about 100 miles apart. New airways are to be referred to as "Victor," with odd-numbered airways running north and south and even numbers east and west. The numbering system is similar to that of highway routes.

Of the new routes, 35,000 miles are primary and 10,000 are alternate.

Sells Two DC-4's

California Eastern Airways has sold two DC-4's, with the total proceeds of $1,200,000 to be used to expand company activities, according to Chairman of the Board Andre de Saint-Phalle.

Carmas Supply Corp., Washington, D. C., and Loftleidir H. F. Icelandic Airlines, are the purchasers. California Eastern leased an additional two DC-4's from Trans Caribbean Airways.

CAA Warns Pilots Not To Use Reducing Drug

CAA has issued a warning to pilots against the use of amphetamine or its derivatives, including benzedrine and dexedrine, used for reducing weight. The warning was issued after two fatal accidents in England involving pilots who were relying on dexedrine to help them lose weight.

Dr. W. R. Stovall, chief of CAA's Medical Division, stated that the drugs, taken even in small dosages "increase anxiety and excitability and might thereby cause a pilot to react inappropriately in a situation of stress."

TCA Seat Space Upped

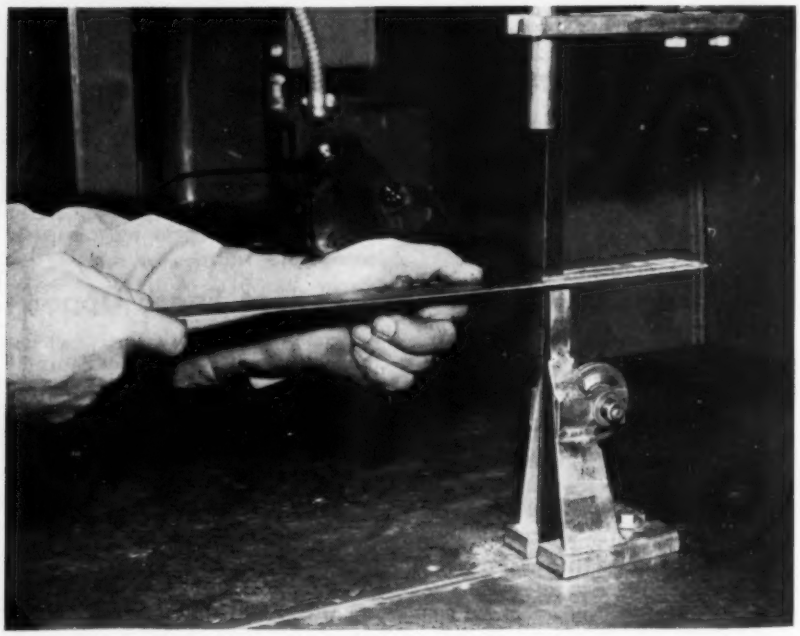
Trans-Canada Air Lines will increase the seat capacity aboard its DC-4M's from 40 to 48 seats. Having been certificated by the Canadian Department of Transport, TCA will make room for the changeover by rearranging restroom and other facilities, but no reduction in leg room or passenger comfort is anticipated.

New AEMCO President

Aircraft Engineering and Maintenance Co. has elected Douglass F. Johnson as its new president. Executive vice president for the last year, Johnson had previously been sales director, serving in that capacity since 1946 when the company was founded.

Lockheed's family of planes covering the 18 year history of the company are shown here with the Super Constellation, Constellation and Constitution, the three largest, towering over the twin-engine Lodestar and Electra and Model 12.

Maintenance Bulletin Board



Toothless Saws from Box Straps

EXPERIMENTS at Solar Aircraft Company have disclosed that ordinary steel box strapping, without teeth, will cut stainless steel and other high alloy sheet. This means that toothless steel blades costing from 10c to 50c, which will reduce industrial accidents and save strategic metals, can be used in place of the conventional blades costing more than $3. The toothless blades last from 29-70 hours, as contrasted with about two hours for blades with teeth.

This strange development came about when Solar assigned Jack Prince, a methods analyst, to study the situation and determine how Solar's $2,500 annual blade costs could be reduced. Noting that the blade cut as well on the smooth side as on the toothed surface, Prince experimented with common steel strapping used to wrap boxes. It sawed as well as the costly toothed saw and lasted about 15 times as long.

Further experiments proved that using a better grade steel without teeth produced a 50c blade which would last up to 70 hours. Toothless blades, in addition to cutting stainless steel and high alloy steel, have satisfactorily cut tool bits, files, and cobalt steel. They work best at high speeds and have only been tested thus far on band saws.

Normal saw operation is actually a result of the heat generated by the movement of the teeth, which "burn" rather than rip through metal. Solar explains its phenomena in this manner: "Ordinary saw blades have been equipped with teeth largely on the theory that the teeth acted as tiny oxygen scoops to bring oxygen to the metal being cut and to speed the burning action. Toothless blades hardened and roughened within the first few seconds of use to a point where they scoop oxygen as well or better than blades equipped with teeth. Absence of teeth eliminates the weak spots built into the normal saw in shaping the teeth."

Solar, a leading manufacturer of high temperature parts for all types of engines, is still cautious about its discovery but has released initial results for what they may be worth to the industry.

Awards on Weight Cuts

In dealing with suggestion system awards Trans-Canada Air Lines awards give $1 per useable pound saved. Thus when it adopted a suggestion that the fuel tank shutoff valves which were causing considerable maintenance difficulty on North Star aircraft be removed because they served no useful purpose, the inspector making the suggestion got $26 per aircraft for the weight saving, plus $140 for the man-hour saving the rework permitted.

New CAA Device Records Accelerations

An automatic counting accelerometer weighing 18.77 pounds has been developed by CAA's Technical Development and Evaluation Center for recording and classifying accelerations to which different preselected aircraft parts are subjected. One of the anticipated applications is for pilot training, in which the instrument would be used to check pilot performance during landing, take-off run, and in actual flight. It could also be used by the aircraft designer to test structural features.

The instrument consists of a small pickup unit electrically connected by a five-conductor-shielded cable to a counting unit. Constructed to produce an electrical impulse each time a greater acceleration is reached, five accelerometer elements are contained in the pickup unit.

Conducted under varied conditions, laboratory and flight tests showed that the device would count all accelerations of duration either equal to or greater than 0.02 second if the accelerations occurred at intervals of 0.12 second or more. Engine and other vibrations occurring in flight had no negative effect.

Ramp-type dolly won a $100 award from American Airlines for Fort-Worth-based mechanic J. E. Archer. Dolly is used for elevating Convair airplanes to facilitate moving them in and out of hangars having doors which will not pass the Convair tail with the aircraft in the three-point position. The unit makes it possible to carry on maintenance in hangars where it was previously handled outside.

Rubber Stud For Springs

Trans-Canada Air Lines, after considerable experimentation, has started inserting a rubber stud into the end of the cowl flap spring on Douglas DC-3 cowl flaps to reduce wear on the end of the spring.

The method grew out of a mechanic's suggestion that a friction-reducing roller be added on the end of the cowl flap springs for this purpose, or as an alternative, that a portion of the flap itself be covered with Neoprene rubber or any other material which would reduce the wear on these springs.

Three-Piece Floor Mat

A TWA mechanic has been granted a suggestion system award for proposing that the cockpit floor mat in Constellation aircraft be divided into three segments to facilitate fabrication, installation, and removal of the mat during its service life.

Useless Shipping Cut

One airline has established a procedure under which faulty brake discs removed at field stations are weighed at that point prior to shipment back to the home base for repair. Weight limits have been set up and discs falling below approved minimums are scrapped at the field stations preventing useless shipment of the heavy discs.

Collar removal from Hi-Shear Rivets is simplified by a tool developed by W. L. Bush of Temco Aircraft Co. The tool, which does not score or distort the pins, consists of a pair of 7-inch Star Cutter Nippers with special jaws. One jaw is curved and sharpened to wedge between the rivet collar and riveted part preventing the cutters from slipping. The other jaw cuts the collar along its lateral axis and forces the material apart. A second cut frees the collar.

Sturlason's Pressebyra

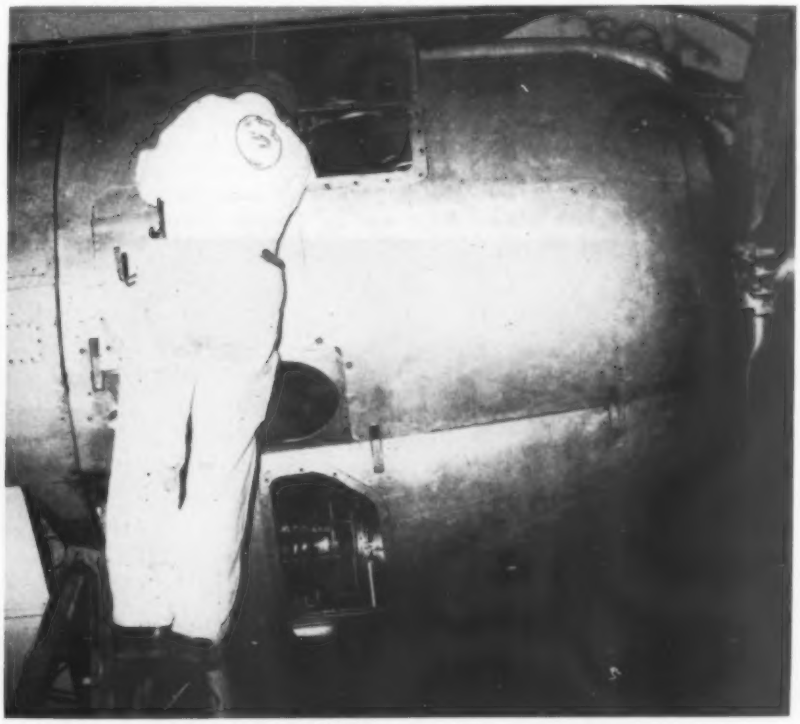
Wing removers in use by Scandinavian Airlines System at Oslo simplify the job of installing or removing the wing. Unit makes two-man operation out of once difficult job and provides better handling of the wing. It was initially designed by engineers of British Overseas Airways Corp.

Emergency Evacuation Regulations Proposed

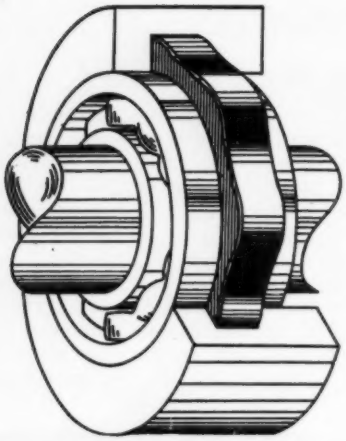
CAB has made two changes in proposed Amendment 4b-4 of the CAR which covers new regulations for emergency evacuation provisions.

The first change affects the number of occupants of transports not listed in the original table, but for which an application for a type certificate was made before December 20, 1951. It states that the number of passengers and crews shall not exceed the number designated in 4b.362(b). If the seating capacity is more than 50 occupants, however, there shall be one additional exit for each 14 over the original 50.

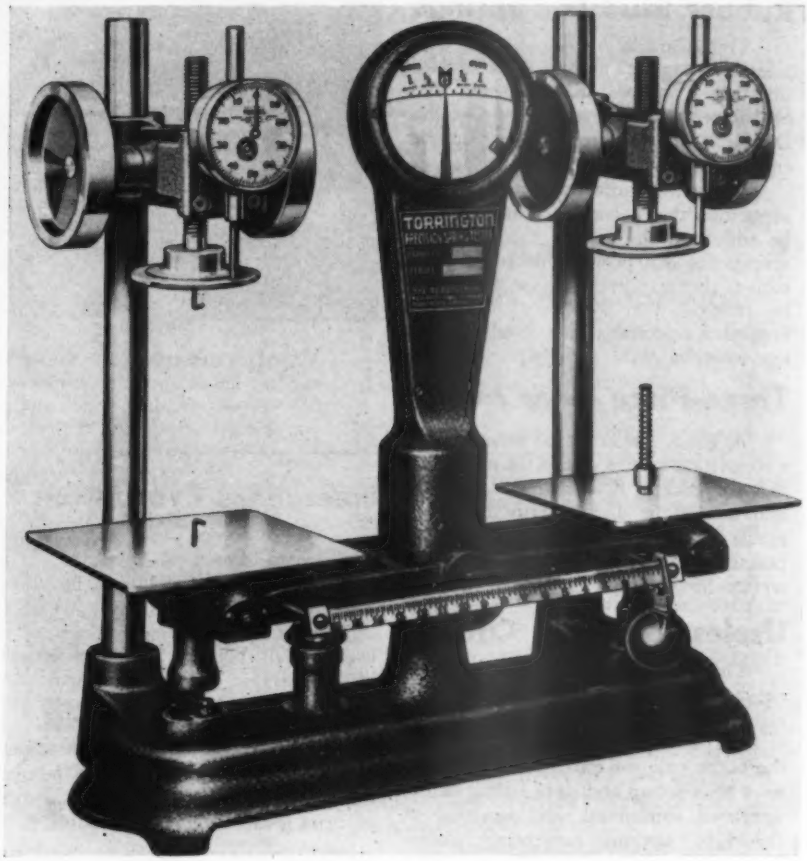
The second change applies to the proposed evacuation demonstration test. Originally, it had been stated that when emergency exits, other than those over the wing, were 10 ft. from the ground with gear retracted, adequate assistance would be provided to assist occupants to the ground. It now states that such assistance will be provided when the exits are six feet from the ground with landing gear extended.



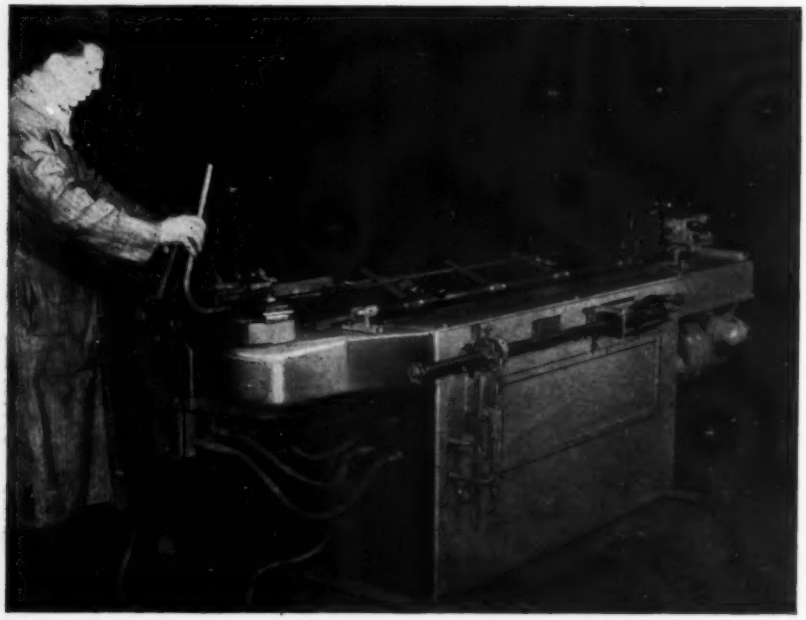
Improved accessability of the engine for maintenance work is provided by this modification of the Curtiss C-46 engine cowl, providing an access plate on each side of the lower cowl, worked out by the maintenance department at The Flying Tiger Line. The innovation has cut sharply into maintenance manhour requirements for routine checking and adjustment.



Anti-rotation device which prevents spin and creep of the outer race of a floating bearing in aircraft accessories and other high speed tools and motors has been developed. Composed of a waved steel spring and molded rubber ring, the device eliminates this type damage. Address: Scintilla Magneto Div., Bendix Aviation Corp., Sidney, New York.



Spring-testing machine for load-testing coil springs, determining spring gradient, free height in relation to load, and performing similar checks is being marketed. One of the two machines measures loads up to the nearest one-hundredth of an ounce and to a capacity of three pounds. Address: The Torrington Manufacturing Co., Box 808, Torrington, Conn.



Push Button Controlled tube bender, which occupies 30% less space than conventional units, was displayed at the American Society of Tool Engineers Convention recently by Pines Engineering Company, Aurora, Ill. Known as the Pines Aircraft Size ¾ tube bender, the unit features individual control of all functions at any time during cycle of operation.

New Products

Steam Cleaner

A new steam cleaner which develops 100 pounds steam pressure in 90 seconds and can be operated for as little as 50 cents an hour has been designed by Aeroil Products Company, Inc.

Designed for aviation use in service shops, cleaning nacelles, props, wings, landing gears, etc., the "Auto-Steam" vapor steam cleaner can be operated by one man and will operate up to eight hours on one filling. Tubular pancake sections of the flash-type boiler are readily accessible for inspection. Powered by a ½ horsepower motor, it has a capacity of 120 gallons per hour and 75-110 pounds working pressure.

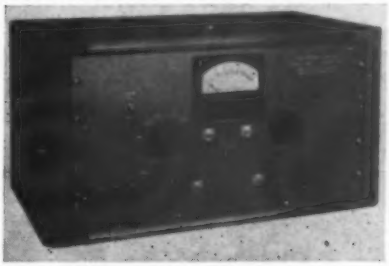
Address: **Aeroil Products Co., Inc.,** South Hackensack, N. J.

Sta-Kon Tools

Production line installation of Sta-Kon pressure wire terminals is speeded up by the new tool which operates on 75-150 psi shop air pressure. It puts two tons pressure behind the installing dies. Tool can be bench mounted or hand held and actuated by either a finger trigger or foot valve.

Weighing 40 ounces, the tool is direct coupled, without toggle links, pivots, levers, or cams to wear. Interchangeable dies install bare or self-insulated Sta-Kon terminals on AN or AWG wires No. 22 through No. 10.

Address: **The Thomas & Betts Co. Inc.,** 48C Butler Street, Elizabeth, N. J.



Capacitance Meter

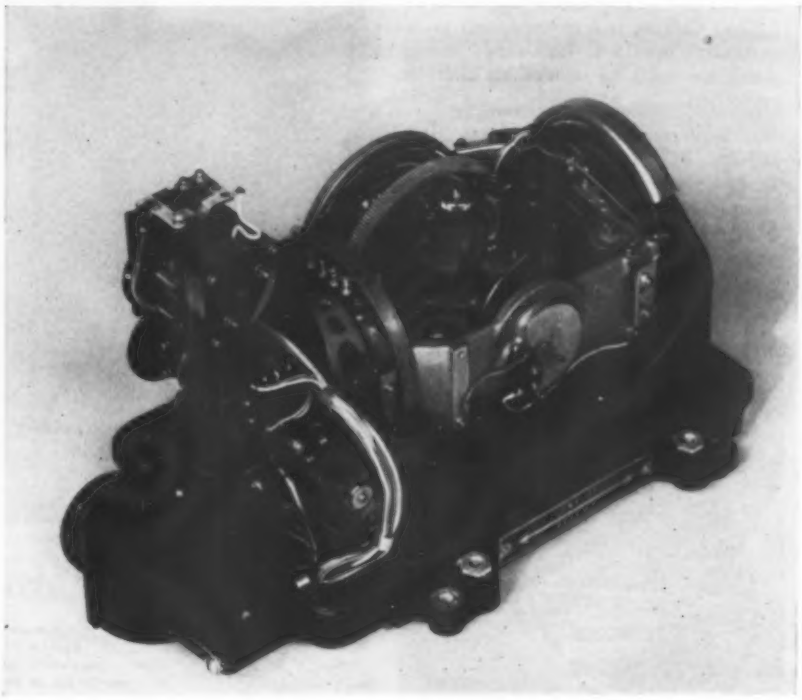
A direct-reading, self-contained instrument for production measurement of small values of direct capacitance has been introduced by MacLeod and Hanapol, Inc.

Capacitance is read directly on a four-inch instrument with logarithmic scale. Scale ranges from 0.1, 1.0, 10 and 100 uuf. Absolute accuracy is better than 5%, the manufacturer states, and reproducibility better than ½%. Measurements are made at 500 kilocycles. Variations in 60-cycle line voltage from 95-135 volts do not affect its accuracy. Overall dimensions of the 40-pound unit: 10½ by 19 inches.

Address: **MacLeod and Hanopol, Inc.,** 10 Joiner St., Charlestown 29, Mass.

X-Ray Cabinet

An industrial cabinet for either radiographic or fluoroscopic inspection of parts has been designed by Bar-Ray Products. Designed for straight line or



Fast Caging Gyro Developed by M-H

A $2.5 million production order for new-type rapid-caging gyros has been placed with Minneapolis-Honeywell Regulator Co. by the U. S. Navy. Called a cageable vertical gyro, the new M-H unit features two-second caging time and tumbling pin construction, permitting unlimited freedom of rotation about the outer gimbal axis and plus or minus 85 degrees about its inner gimbal axis.

Caging is accomplished by a pilot operated switch. Designed for auto-pilot systems, missile guidance and stabilization or radar scanning, the new unit weighs five pounds and with modification of radar scanning, the new unit

Address: **Minneapolis Honeywell Regulator Co.,** 2600 Ridgway Rd., Minneapolis 13, Minn.

rotary operation, the unit has trays for holding film and parts which can be installed from either end. After each exposure doors are raised and parts trays are moved into position for next exposure. Cabinet is lead-lined, and pneumatically operated lead-lined sliding doors are used for maximum operator protection.

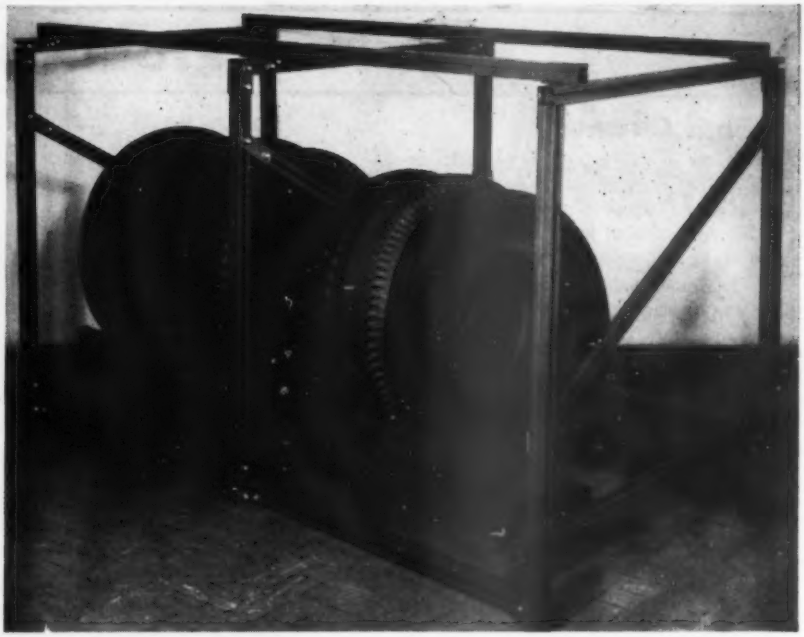
Address: **Bar-Ray Products, Inc.,** 209-25th St., Brooklyn, N. Y.

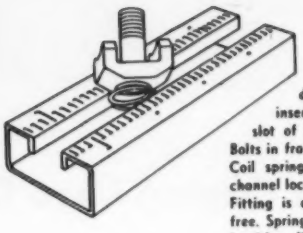
Pressure Switch

A bourdon tube type pressure switch for use with air, fuel, hydraulic, or lubricating oils has been designed by Hydro-Aire, Inc.

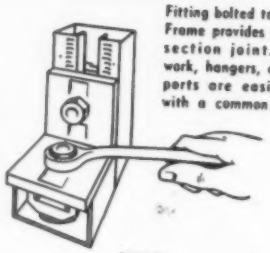
Available for pressures ranging from zero to 1,500 pounds, the Hydro-Aire switch is rated to operate at temperature ranges from minus 65° to plus 160° Fahrenheit, and at altitudes to 50,000 feet. Maximum current capacity is one ampere at 50,000 feet at 28 volts, direct current. Suited for use in electrical control or warning systems where fluid pressure is one of the control parameters.

Address: **Hydro-Aire, Inc.,** Burbank, Calif.





Ainsworth's exclusive design permits easy insertion or removal through slot of one or more Spring-T-Bolts in frame channel at any time. Coil spring holds bolt in desired channel location while Safe-Locking Fitting is attached, leaving hands free. Spring-T-Bolt is easily moved in either direction.



Fitting bolted to channel Frame provides solid box section joint. Frame work, hangers, and supports are easily built with a common wrench.

Mult-A-Frame Highly Versatile

A versatile new steel framing material called Mult-A-frame, for use in constructing metal racks, storage compartments, and other frame structures, has been announced by Ainsworth Mfg. Corp.

System uses three standard parts in various combinations to produce racks of any size or shape. These parts are a precision made spring-T-bolt, channel frame, and safe-locking fittings. Assembly is by means of regular wrenches with no special tools. No holes have to be drilled and at any time the frames can be readily disassembled and fitted to new requirements.

Address: **Mult-A-Frame Div.,** Ainsworth Mfg. Corp., 2200 Franklin St., Detroit 7, Mich.

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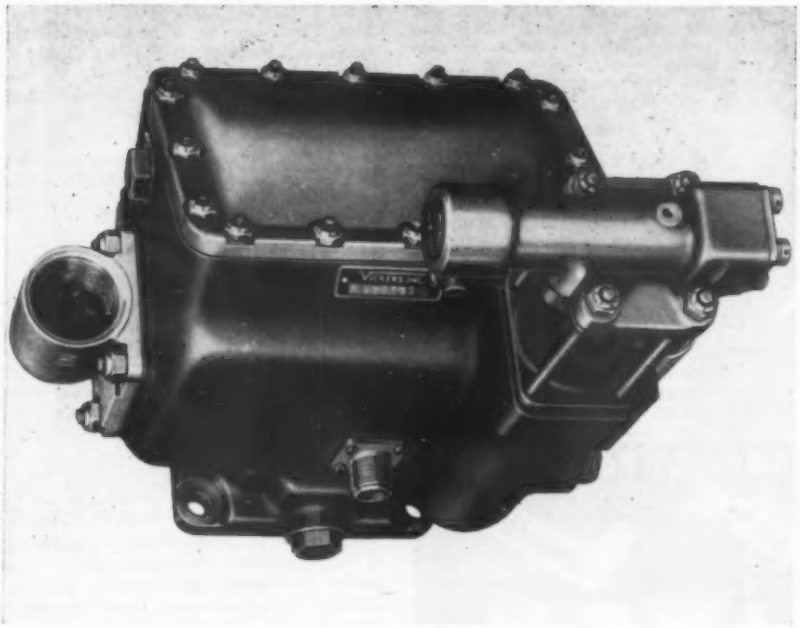


Economies Possible with New Pump

A new design which makes it possible automatically to depressurize the 3,000 psi hydraulic pump when the hydraulic power is not required during an intermittent duty operation has been introduced by Vickers Incorporated.

Depressurization is accomplished by means of an electrical signal. When the pump is depressurized, input power to the pump is negligible resulting in marked engine power and fuel savings. Vickers reports that in one instance a saving of up to 700 pounds of fuel per flight has been obtained. In such applications the pump operates at rated speed with zero delivery and pressure. Another electrical signal puts the pump back in operation.

Need for mechanical clutches or disconnects is eliminated by the Vickers design. Feature can be provided on any size Vickers variable displacement pump. Ask for Brochure A-5202.

Address: **Vickers Incorporated,** 1400 Oakman Boulevard, Detroit 32, Mich.

Pneumatic Check Valve

Designed for operation at air pressures up to 4,000 pounds per square inch and hydraulic pressures up to 5,000 psi, the new Bobrick pneumatic check valve provides a maximum free flow of seven pounds per minute. Maximum pressure drop through valve is 100 psi at seven pounds per minute air flow, with an inlet pressure of 150 psi maximum.

Leakage in reverse flow will not exceed 200 cubic inches of free air per minute at 4,000 psi. Proof pressure is 9200 pounds. Manufactured of stainless steel in standard AN6249 envelope.

Address: **Bobrick Manufacturing Corp.,** 1839 Blake Ave., Los Angeles 39, Calif.

Protractor

A protractor for measuring angles on sheet metal parts has been introduced by Sheridan-Gray Co., The "Angle-Chek" provides a ready means of checking angles on metals fabricated on hydraulic presses, brakes, etc. Accuracy is within plus or minus five minutes. Angle is read directly on scale. Price: $14.95, with discounts for quantity orders.

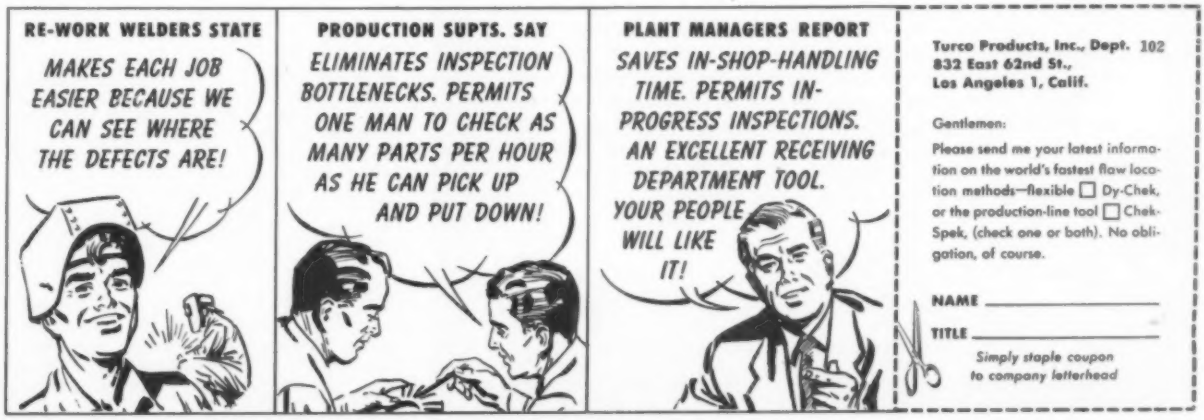
Address: **Sheridan-Gray Co.,** 131 No. Benita Ave., Redondo Beach, Calif.

Hi-Temp Wire

Miniature wire featuring an impervious fused insulation with high dielectric strength and a higher temperature rating has been announced by Tensolite Insulated Wire Company.

Wires use duPont Teflon in the form of multi-wrapped and fused tape, preventing pinholes or other irregularities. Temperatures up to plus 250° Centigrade have no deteriorating effect on the Tensolon dielectric covering, according to the manufacturer. For complete information:

Address: **Tensolite Insulated Wire Co.,** 196 Main St., Tarrytown, N. Y.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NAME
TITLE
Simply staple coupon to company letterhead

Technical Literature

MATERIALS HANDLING EQUIPMENT: Hyster Co., 2902 N.E. Clackamas St., Portland 8, Ore., has a two-color catalog available, featuring attachments, tools, and accessories to ease material handling with Hyster industrial trucks. Model views, diagrams, specifications, and photographs highlight the features of the equipment in the 24-page brochure.

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SHEET METAL FABRICATOR: Wales sheet metal fabricator is described in Catalog 10-A, featuring hole punching, notching, and nibbling plus the Wales patented Hydra-New-Matic Head, "quick change" holder and the 3½ holder that punches round and shaped holes up to 3½ inches in diameter. Wales-Strippit Corp., 345 Payne Ave., North Tonawanda, N. Y., is distributing the catalog.

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OIL HYDRAULIC EQUIPMENT: Super-draulic Corp. products are outlined in a new booklet with photos and layout drawings on typical hydraulic designs. It can be obtained from the manufacturer, address being 14256 Wyoming Ave., Detroit 4, Mich.

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LOW PRESSURE LAMINATE: "Reinflastics," new low pressure laminate of reinforced Fiberglas, nylon, or other modern materials has found application in mechanical, thermal, electrical, physical, chemical, and decorative industries. Described in a brochure offered by Russell Reinforced Plastics Corp., 45 West John St., Hicksville, N. Y., the material is said to be lighter than aluminum and stronger than steel. The publication covers production of flat panels, matched die and vacuum bag molded parts, expanded plastics, sandwich construction, and laminated phenolics.

•

JET ENGINE STARTING: Motor Generator Corp., Troy, Ohio, has issued an eight-page folder outlining methods of jet engine starting with rotating type DC-generators. Illustrated are other uses for external DC power while aircraft is on the ground and applications for functional testing of electrical parts.

•

SHEET-METAL PRODUCTION: "Craftsmen in Sheet Metal Production," a 20-page booklet available from Lyon Metal Products, Inc., Aurora, Ill., describes and illustrates facilities, management, and finances available through the company at Aurora and York, Pa., for special sheet-metal production. Booklet also contains a complete list of all the Lyon equipment and machinery, including toolrooms at both plants.

•

THERMOFLEX BLANKETS: Johns-Manville, 22 E. 40th St., New York 16, N. Y., has recently issued a four-page folder on Thermoflex Blankets, the high-temperature thermal insulation for aircraft power plants and airframes. The folder is especially intended for engineers, designers, and personnel interested in jet aircraft. It describes a new Type K "inside-out" construction and the new Thermoflex RF (refractory fiber) Felt.

Text covers stability, weight, thermal transmittance, and fire resistance, including tables of technical data and typical uses to help in determining which type of Thermoflex Blanket construction is most suitable for a given application. The folder has close-up pictures of Thermoflex Blankets and photographs of representative jet engines and aircraft that have used them.

•

TOOL POST TURRETS: Royal Products, 80 Union St., Mineola, N. Y., is circulating a technical data bulletin on the company's new line of tool post turrets. These tools, according to the booklet, provide 12-position indexing and offer flexibility from one job to another. Simplified charts in the bulletin permit easier size-checking and ordering, according to Royal Products.

•

CONTROL VALVE: An electrically controlled, explosion-proof air control valve recently announced by The Bellows Co., 230 West Market St, Akron, O., is described by the company's bulletin AVX-310.

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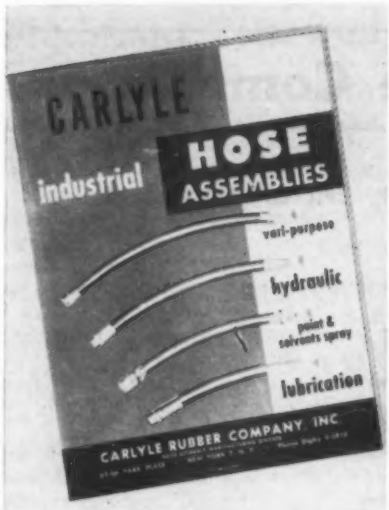

RUBBER HOSE ASSEMBLIES: Industrial rubber hose assemblies for all types of aviation equipment are manufactured by Carlyle Rubber Co., Inc., Dept. K-1, 62-66 Park Pl., New York 7, N. Y. The company has readied a brochure detailing its vari-purpose hydraulic, paint, and solvents spray, and lubrication assemblies.

•

CONTINUOUS SAMPLING MONITOR: A four-page, two-color bulletin on the continuous-sampling monitor—a device to simplify quality control—is available from the General Electric Co., Schenectady 5, N. Y.

The booklet, designated GEA-5738, contains photographs and diagrams of the equipment, end explains the continuous sampling monitor's operation, construction, and range. It is designed to complement bulletin GEA-5627 on quality control instrumentation.

•

CONNECTOR: A pocket-size instruction manual on "Using the NA-"M" Connector"—a vibrationproof, pressurized connector for aircraft, radar, instrument. and general electrical applications—is available on request from the Cannon Electric Advertising Department, P. O. Box 75, Lincoln Heights Station, Los Angeles 31, Calif. The 32-page illustrated handbook is a late reference on the proper technique for servicing the new AN-"M" Military Specification and other Cannon Electric Resilient-insert connectors.

•

AIRCRAFT ENERGIZERS: Motor Generator Corp., West Water St., Troy, O. is circulating an 8-page folder describing and illustrating the company's line of Hobart aircraft energizers.

•

CAPACITORS, FILTERS: A catalog enumerating the company's line of capacitors and RF interference filters is available from Astron Corp., 255 Grant Ave., East Newark, N. J. Under each major listing the catalog describes the history of the type of component, its use, and exact Astron specifications. Under metallized paper capacitors are listed test procedures. Under RF interference filters are drawings, charts, and tables as well as attenuator data.

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Airline Commentary

By Eric Bramley

DOES the airline agent at the small intermediate point get the proper recognition?

We've received a thought-provoking letter from an airline station manager on the small town agent versus the big city agent. Here's what he says:

"True, the major station employe has his specialist problems. He must cope with mass check-ins or documentary requirements on an international flight, but he is still a specialist.

"But take any of the . . . small points . . . in the United States. Here the agent, often the only authority on the airport, takes weather, works operations, loads, unloads, works reservations and teletype, knows freight, mail and express, and drives the fuel truck, and at times the emergency equipment. He is the company's representative, and the final authority in the area. His company is judged by the impression he makes.

"Here is the man who needs a boost in 1952. He is often compared with his less capable and frequently less intelligent counterpart in the big cities, his station is bypassed when new equipment comes out, the authority for fans and heaters never seems to get down that far, and his job has lost much of the glamour once attached to it.

"He is the man most responsible for the progress of the industry today. He does his job, is no problem to personnel or industrial relations, and is the backbone of the industry. He is our man of the year."

Think that one over. What's your opinion?

•

When Tom Haywood, now a captain for The Flying Tiger Line on the Pacific airlift, attended a recent open house at the San Fernando Valley Airport in Van Nuys, Calif., he saw on display a P-40, the type he had flown when he was one of the original Flying Tigers with Gen. Chennault in China. Someone asked him: "Tom, how would you like to fly one of those things again?" Tom's virtually automatic reply was: "What, on one engine?" Times change.

•

"Seniority, Sex and Salary" is the title of a humorous, well-written article by **Capt. Dave Kuhn,** of TWA, appearing in the *Air Line Pilot,* ALPA publication. Digging "humorously, not critically" at his fellow workers, he says that to an airline pilot, the three S's are the "only three factors in life worth consideration. When a group of airmen are gathered for 'comprehensive discussion,' this triumvirate is the basis of their combined thought." Here are some excerpts, and we wish we had room for more:

Seniority: "When a fellow pilot goes west, a pilot will check the seniority list to see how many files he has moved up. To a pilot, it means choice of domicile, choice of runs (notwithstanding schedule clerks to the contrary), and choice of equipment flown. Seniority is jealously guarded. Friends have become bitter enemies over seniority rights. In checking into a hotel, seniority usually governs the choice of beds, bathroom utilization, and affairs of the heart."

Sex: "With sex, it's the end result that counts. Most pilots fancy themselves as great lovers. The facts reveal many discrepancies in that line of thought. Any hostess will tell you that the most useless thing on a date is a pilot with a 20-year pin. Pilots approach sex in much the same manner as they execute an ILS procedure—fast and by the book. Being victims of habit, they are trying to conform to schedule."

Salary: "His paycheck never reflects what he believes the industry is getting out of him. He blasphemes the 'rock-headed' negotiation committee that signed his working agreement. Having never read his contract, it is difficult to explain his raises to him. Because his representatives spent more than two years wresting a few additional dollars for him is more proof that he was sold down the river."

Parting thought: "It has been asked to which of the three S's the pilot attaches the greater importance. The answer seems to depend on the individual pilot. I have yet to see the 20-year man who wouldn't grudgingly, but willingly, trade a few numbers on the seniority list to recapture the urges of yesteryear."

Piedmont Renewed for 7 Years by CAB

Piedmont Aviation became the first local service line ever to get a certificate for more than five years duration last week when CAB renewed the line for a seven-year period. Board decision was unanimous and was in recognition of Piedmont's "outstanding record among local service carriers."

At the same time, CAB also modified the line's routes to give them added strength. Among other things, this involved suspension of certain trunk line services by Capital Airlines and American Airlines at points added to the Piedmont system.

Piedmont's original certificate expired December, 1950. The new license, the first to ever receive the affirmative support of the Post Office Department, will run through December, 1957. These changes were made by CAB:

• **A new Richmond-Knoxville** segment was added with intermediate rights to Lynchburg, Roanoke and Bristol and with American suspended at Lynchburg and Bristol.

• **Authorization** to serve Hickory, N. C., on two segments added with Capital suspending trunk line operations to the point.

• **A new Beckley, W. Va., to** Louisville, Ky., segment added via Lexington, Ky., and a new Wilmington, N. C., to New Bern, N. C., segment added via Morehead City, N. C.

On a point vital to the local service industry, CAB rejected a recommendation of Examiner Ferdinand D. Moran for a ten-year renewal to encourage aircraft manufacturers to develop and produce a new short-haul aircraft. While it may be true that the stability of local carriers will affect the development of improved short-haul aircraft, they said, "such stability must first be attained by the establishment and development of sound route patterns rather than by the granting of long-term certificates to operate routes which may prove to be unsound.

But they agreed that the circumstances of the Piedmont case "warrant a renewal period somewhat longer than five years." The record achieved by Piedmont is so outstanding among local lines, CAB said, as to merit special recognition. By awarding it a seven-year renewal "we would reward the carrier for its achievements and thereby offer an incentive to other local service carriers to strive for comparable results."

Appellate Court Rules on CAB Powers

Two important rulings on the scope of CAB's powers were issued recently by the Ninth Circuit Court of Appeals in San Francisco. Involving appeals of Western Air Lines and Southwest Airways on a new Phoenix-Los Angeles route award to Bonanza Airlines, the Court upheld the route award with these findings:

• **CAB can suspend** trunk line operations in favor of temporary experimentation with local airline service;

• **CAB can withdraw** a certificate that has not yet become effective, but is powerless to cancel a certificate if it has become effective.

The first point was raised by Western, which CAB ordered to suspend service at El Centro, Calif., and Yuma, Arizona, during the life of the temporary Bonanza route authorization. Western went to the Court with these arguments:

• **the CAB order,** rather than being a suspension, amounts to a revocation and does not meet the statutory requirements for revocation;

• **If the order is** a suspension, it is invalid since CAB may not eliminate a permanently-certificated air carrier to make room for a new carrier; and

• **the suspension** violates the Fifth Amendment of the Constitution since Western's property is taken for a public use without just compensation.

The Court answered that "we are not convinced" of the permanency of the suspension since Bonanza's certificate is temporary, expiring December, 1952.

On the second argument, the Court said CAB may classify between types of air service and may find that one kind of air service is not appropriate during a certain time. "To say that CAB could not substitute during that time another type of air service," Court said, "would be an unreasonable limitation upon CAB's power to plot the air map, primarily in the public interest."

On the Fifth Amendment point, ruling was that since Western did not make its case on this issue before the Board, "it is expressly barred now from raising the issue in this court."

The other issue ruled on by the Court involved a Southwest petition which recited how it once was awarded substantially the same routes as now awarded Bonanza and how CAB later rescinded the award before service was ever inaugurated.

Court said in answer that CAB has the power to reconsider a decision issuing a certificate and to cancel the certificate on reconsideration if the certificate has not become effective. But if the certificate has become effective, CAB is without any power to cancel it on reconsideration.

CAB Decisions

• **Trans World Airlines** granted temporary exemption to serve Albuquerque and Santa Fe, N. M., on the same flight subject to condition against carriage of local traffic between the points.

• **Trans-Texas Airways** granted temporary exemption permitting service to Mission-McAllen-Edinburg, Texas, through "an airport other than Moore Field." TTA requested authority for use of McAllen Municipal Airport.

• **Regina Cargo Airlines'** letter of registration, under suspension by Board order, reinstated in view of compliance with provisions of suspension order.

Examiners' Reports

Disapproval of International Air Transport Association resolution proposing a cut from 7½% to 6% in agency commissions on trans-Atlantic tourist sales recommended by Examiner F. Merritt Ruhlen.

Denial of applications of Clinton, Iowa for air service by Braniff Airways or Ozark Air Lines recommended by Examiner Barron Fredricks.

Revocation of the letter of registration of American Air Transport & Flight School, Inc., Miami-based non-sked, recommended by Examiner Walter W. Bryan for alleged violations of the Civil Aeronautics Act and economic regulations.

CAB Calendar

June 10—Hearing in Las Vegas-Los Angeles Restriction Case. City Hall, Las Vegas, Nevada. (Docket 5219 et al.)

June 23—Hearing resumed in Southern Airways Certificate Renewal Case. Washington. (Docket 5199.)

June 24—Hearing in Trans-Texas Airways Segments 2 & 6 Renewal Case/ Braniff-Eastern Suspension Case. Tentative. (Docket 5233 et al.)

July 7—Hearing in Pioneer Air Lines Mail Rate Case. Washington. (Docket 5499.)

SUMMARY OF U. S. DOMESTIC AIRLINE REVENUES & EXPENSES FOR FEB., 1952

AIRLINES	TOTAL OPERATING REVENUES	PASSENGER REVENUES	MAIL REVENUES	EXPRESS REVENUES	FREIGHT REVENUES	EXCESS BAGGAGE REVENUES	NON-SCHEDULED TRANSPORT REV.	TOTAL OPERATING EXPENSES	AIRCRAFT OPERATING EXPENSES	GROUND & INDIRECT EXPENSES	NET OPERATING INCOME
American	$ 11,508,877	$ 9,624,143	$ 618,908	$ 313,920	$ 662,092	$ 113,666	$ 57,454	$ 11,475,936	$ 5,692,001	$ 5,783,935	$ 32,941
Braniff	1,517,890	1,264,520	149,057	29,426	39,468	10,372	6,079	1,419,853	684,380	735,473	98,037
Capital	2,494,703	2,105,142	92,654	87,443	60,117	19,542	81,413	2,935,605	1,369,058	1,566,547	-440,902
Caribbean	98,299	83,727	7,591	. . . .	2,935	1,142	327	88,528	37,547	50,981	9,771
C & S	997,437	833,676	109,374	24,769	18,145	6,991	1,029	994,327	470,800	523,527	3,110
Colonial	341,707	252,157	79,017	4,381	3,597	1,383	. . . .	420,463	174,177	246,286	-78,756
Continental	736,035	545,940	139,693	6,032	13,096	4,533	19,593	721,493	376,753	344,740	14,542
Delta	2,383,565	2,116,411	89,898	31,438	71,854	33,526	1,112	1,987,174	999,264	987,910	396,391
Eastern	9,052,252	8,447,242	221,342	110,566	96,749	156,140	-577	7,846,354	4,342,783	3,503,571	1,205,898
Hawaiian	300,450	219,140	43,191	7,859	24,820	3,765	483	320,724	124,510	196,214	-20,274
Inland*	225,118	206,889	8,613	2,565	4,573	1,994	. . . .	238,986	95,303	143,683	-13,868
MCA**	741,653	576,342	112,386	7,514	11,615	4,690	15,003	778,111	356,297	421,814	-36,458
National	2,677,895	2,427,794	65,348	21,771	90,872	56,726	403	2,206,053	1,126,525	1,079,528	471,842
Northeast	365,741	252,429	94,743	7,900	4,958	1,444	. . . .	542,100	237,294	304,806	-176,359
Northwest	2,222,696	1,823,622	223,071	52,610	59,623	11,824	1,635	2,756,910	1,355,476	1,401,434	-534,214
Trans Pacific	124,929	86,135	22,777	1,033	2,115	575	9,762	130,995	47,230	83,765	-6,066
TWA	6,892,448	5,868,479	426,690	185,156	259,829	52,306	12,523	7,344,790	3,641,516	3,703,274	-452,342
United	9,167,880	7,317,156	807,029	255,168	448,924	64,915	102,906	8,644,824	3,841,610	4,803,214	523,056
Western*	990,780	875,343	51,256	14,708	14,017	6,006	. . . .	896,630	411,992	484,638	94,150
TOTALS	52,840,355	44,926,287	3,372,638	1,164,259	1,889,399	551,540	309,145	51,749,856	25,384,516	26,365,340	1,090,499

* Operations of Western and its subsidiary, Inland, should be considered as consolidated, although reports are filed separately as shown here.
** Figures do not include operations of local service segment (route 106) awarded MCA by CAB in the Parks Air Lines Investigation Case. Figures covering operations of route 106 are carried separately on local service airlines summary sheets.

NOTE: These figures are taken from monthly reports filed by the airlines with the Civil Aeronautics Board. The data are tentative and subject to later change.

SUMMARY OF U. S. DOMESTIC AIRLINE TRAFFIC FOR FEB., 1952

AIRLINES	REVENUE PASSENGERS	REVENUE PASSENGER MILES	AVAILABLE SEAT MILES	PASSENGER LOAD FACTOR	MAIL TON-MILES ***	EXPRESS TON-MILES	FREIGHT TON-MILES	TOTAL TON-MILES REV. TRAFFIC	AVAILABLE TON-MILES FLOWN	% AVAILABLE TON-MILES USED	REVENUE PLANE-MILES	SCHEDULED MILES	% SCHEDULED MILES COMPLETED
American	317,921	177,768,000	277,134,000	64.15	1,364,928	721,848	3,246,699	22,844,282	36,989,742	61.76	6,295,460	6,512,247	95.67
Braniff	62,325	21,932,000	36,472,000	60.13	140,929	71,959	157,152	2,467,596	4,743,872	52.62	983,222	994,196	98.29
Capital	127,746	38,962,000	83,895,000	46.44	174,819	190,463	267,699	4,367,476	10,700,965	40.81	2,046,667	2,077,642	95.28
Caribbean	11,405	889,000	1,672,000	53.17	869	. . . .	2,563	75,132	162,043	46.37	62,783	63,712	97.91
C & S	37,009	14,043,000	24,002,000	58.51	58,147	60,282	87,852	1,553,217	2,926,124	53.08	728,201	748,171	96.75
Colonial	16,217	4,125,000	9,274,000	44.48	10,485	7,502	12,371	445,147	962,562	46.25	284,369	295,896	95.38
Continental	24,741	9,657,000	20,281,000	47.62	47,243	14,697	52,016	1,038,863	2,189,747	47.44	611,866	598,415	99.66
Delta	74,388	37,266,000	59,443,000	62.69	169,982	94,396	338,425	4,195,295	7,278,575	57.64	1,522,623	1,550,225	97.44
Eastern	280,946	145,063,000	231,246,000	62.73	491,869	275,150	506,348	16,742,715	31,456,153	53.23	5,063,726	5,009,283	97.49
Hawaiian	25,087	3,240,000	5,241,000	61.82	2,036	6,896	55,447	335,796	646,620	51.93	250,268	202,312	99.96
Inland*	8,292	3,316,000	5,515,000	60.13	19,066	5,821	13,944	356,758	605,810	58.89	231,358	243,310	95.09
MCA**	31,688	9,808,000	18,583,000	52.78	34,234	17,145	46,364	1,036,895	1,927,658	53.79	674,783	679,094	95.69
National	62,304	44,168,000	65,063,000	67.88	123,298	61,411	412,289	5,101,475	8,358,558	61.03	1,448,929	1,400,112	97.93
Northeast	21,294	4,030,000	8,692,000	46.36	12,320	15,796	11,837	414,021	869,218	47.63	295,922	366,378	79.72
Northwest	48,879	31,949,000	56,771,000	56.28	208,650	136,755	237,808	3,718,951	7,605,882	48.90	1,000,510	1,023,421	96.35
Trans Pac.	11,004	1,365,000	3,244,000	42.08	1,643	1,244	2,970	112,498	289,274	38.89	115,871	106,640	100.00
TWA	150,980	110,607,000	166,412,000	66.47	947,987	456,716	1,272,195	13,274,880	21,961,779	60.45	4,015,965	4,282,342	93.28
United	213,997	137,425,000	217,692,000	63.13	1,784,273	684,306	2,181,427	17,807,350	32,743,328	54.38	5,139,560	5,299,486	95.46
Western*	47,172	16,886,000	28,291,000	59.69	99,304	32,853	51,735	1,797,356	2,981,074	60.29	745,846	750,632	98.94
TOTALS	1,573,394	812,499,000	1,318,923,000	61.60	5,692,082	2,855,440	8,957,141	97,685,709	175,398,984	55.69	31,517,929	32,203,514	95.89

* Operations of Western and its subsidiary, Inland, should be considered as consolidated, although reports are filed separately as shown here.
** Figures do not include operations of local service segment (route 106) awarded MCA by CAB in the Parks Air Lines Investigation Case. Figures covering operations of route 106 are carried separately on local service airlines summary sheets.
*** Includes air parcel post.

NOTE: Figures include both schedule and non-scheduled operations.

U. S. INTERNATIONAL AIRLINE REVENUES & EXPENSES FOR JAN., 1952

AIRLINES	TOTAL OPERATING REVENUES	PASSENGER REVENUES	U. S. MAIL REVENUES	FOREIGN MAIL REVENUES	EXPRESS REVENUES	FREIGHT REVENUES	EXCESS BAGGAGE REVENUES	NON-SCHEDULED TRANSPORT REV.	TOTAL OPERATING EXPENSES	AIRCRAFT OPERATING EXPENSES	GROUND & INDIRECT EXPENSES	NET OPERATING INCOME
American	$ 471,421	$ 404,223	$ 12,020	$ 9,995	$ 150	$ 29,792	$ 6,397	$	$ 423,973	$ 218,169	$ 205,804	$ 47,448
Braniff	661,980	421,455	176,736	11,127	. . . .	40,520	10,298	. . . .	752,404	360,166	392,238	-90,424
C & S	414,435	217,678	154,439	1,314	. . . .	26,801	8,131	. . . .	300,915	139,972	160,943	113,520
Colonial	87,248	78,306	4,999	1,135	. . . .	661	391	. . . .	111,490	45,386	66,104	-24,242
Eastern	517,878	464,773	29,193	. . . .	. . . .	14,559	8,851	. . . .	382,940	253,336	129,604	134,938
National	152,590	144,327	307	. . . .	1,363	4,538	1,849	206	175,383	61,053	114,330	-22,793
Northwest	1,157,137	584,821	316,706	56,102	2,920	167,348	7,694	. . . .	1,461,741	630,852	830,889	-304,604
Panagra	1,150,215	914,158	51,900	46,802	92,412	. . . .	29,996	224	1,182,160	538,082	644,078	-31,945
PAA												
Latin Amer.	5,466,464	3,847,751	602,250	164,838	. . . .	678,941	108,954	56,069	5,812,131	2,661,648	3,150,483	-345,667
Atlantic	4,339,042	2,349,152	1,142,910	195,000	. . . .	386,277	84,877	183,512	4,893,597	2,333,744	2,559,853	-554,555
Pacific	2,725,978	1,441,884	975,131	75,000	. . . .	202,650	23,453	. . . .	2,701,638	1,651,085	1,050,553	24,340
Alaska	386,580	203,249	102,000	. . . .	. . . .	78,569	2,381	. . . .	463,970	201,213	262,757	-77,390
TWA	3,260,581	1,816,994	760,933	256,287	. . . .	268,144	45,079	76,979	3,482,303	1,659,533	1,822,770	-221,722
United	660,387	576,702	46,825	. . . .	. . . .	19,865	3,270	. . . .	822,594	473,231	349,363	-162,207
TOTALS	21,451,936	13,465,473	4,376,349	817,600	96,845	1,918,665	341,621	316,990	22,967,239	11,227,470	11,739,769	-1,515,303

LOCAL SERVICE BALANCE SHEET AS OF DEC. 31, 1951

AIRLINES	TOTAL ASSETS	CURRENT ASSETS	INVESTMENTS & SPECIAL FUNDS	OPERATING PROP. & EQUIPMENT	DEFERRED CHARGES	CURRENT LIABILITIES	LONG-TERM DEBT	DEFERRED CREDITS	OPERATING RESERVES	CAPITAL STOCK	SURPLUS
All American	$ 2,112,834	$ 667,354	$ 320,930	$ 1,101,959	$ 22,591	$ 339,097	$	$ 295	$ 97,786	$ 513,660	$ 1,161,996
Bonanza*	551,665	186,942	1,452	314,436	46,024	328,242	62,900	1	....	547,309	-386,787
Central	1,401,932	735,100	1,321	536,514	128,997	1,110,617	151,978	2,330	....	219,480	-77,813
Empire	470,600	279,234	2,295	126,662	62,408	135,228	....	75	....	338,000	-2,703
Frontier	1,775,503	1,049,397	11,828	564,227	144,468	572,063	509,840	....	....	813,086	-119,485
Lake Central	631,758	256,151	1,101	341,237	33,269	485,767	60,000	13,544	29,803	217,838	-175,194
Mid-West	119,676	111,921	....	4,744	....	35,192	74,534	18,931	....	4,250	-13,231
Ozark	1,233,936	444,494	1,000	556,611	230,331	556,231	280,953	....	....	749,698	-352,746
Piedmont	2,159,684	1,175,574	310,055	672,931	1,124	686,222	....	....	140,519	1,100,000	232,943
Pioneer	1,910,616	1,372,174	1,321	424,028	96,293	788,299	....	2,609	....	90,000	1,029,708
Robinson	1,454,014	473,033	8,605	955,208	17,168	399,681	692,808	....	....	263,161	98,364
Southern	1,245,718	734,071	1,101	438,246	63,391	1,042,049	110,292	....	....	600,000	-506,632
Southwest	1,606,013	1,045,874	8,303	486,342	65,494	413,117	....	458	42,743	327,993	821,702
Trans-Texas	1,110,228	793,609	42,233	253,232	21,154	399,603	....	....	....	900,000	-189,375
West Coast	1,095,363	858,485	1,454	196,302	39,122	222,690	....	2,009	16,064	187,372	667,228
Wiggins	203,299	80,119	61,991	36,902	24,287	26,447	....	....	6,957	81,006	88,859
Wis. Central	1,080,280	430,657	1,101	609,129	26,442	485,047	....	....	....	208,149	387,084
TOTALS	20,163,119	10,694,189	776,091	7,618,710	1,022,563	8,025,592	1,943,305	40,252	333,872	7,160,802	2,663,918
					Helicopter	Mail Service					
Hel. Air Serv.	522,361	268,534	1,000	146,002	46,936	87,350	....	....	....	399,100	35,911
Los Angeles	440,711	289,301	59,010	83,581	7,461	71,696	....	2,443	....	294,000	72,572

* Figures are preliminary.

U. S. LOCAL SERVICE AIRLINE REVENUES & EXPENSES FOR JAN., 1952

AIRLINES	TOTAL OPERATING REVENUES	PASSENGER REVENUES	MAIL REVENUES	EXPRESS REVENUES	FREIGHT REVENUES	EXCESS BAGGAGE REVENUES	NON-SCHEDULED TRANSPORT REV.	TOTAL OPERATING EXPENSES	AIRCRAFT OPERATING EXPENSES	GROUND & INDIRECT EXPENSES	NET OPERATING INCOME
All American	$ 263,187	$ 92,770	$ 152,964	$ 6,299	$ ...	$ 453	$ 9,288	$ 317,343	$ 152,469	$ 164,874	$ -54,156
Bonanza	70,158	32,061	36,097	60	755	393	...	85,976	36,027	49,949	-15,818
Central	125,967	21,785	97,318	780	591	323	8,905	170,258	75,865	94,393	-44,291
Empire	84,723	30,066	51,698	704	...	260	1,421	91,282	47,382	43,900	-6,559
Frontier	305,157	114,084	179,943	1,642	7,160	818	47	362,442	172,019	190,423	-57,285
Lake Central	59,326	16,957	38,708	1,803	...	108	195	106,404	40,902	65,502	-47,078
MCA*	57,117	34,145	20,720	959	726	119	354	79,743	30,924	48,819	-22,626
Mid-West	31,028	1,460	29,554	...	...	14	...	32,550	14,347	18,203	-1,522
Ozark	203,198	35,460	166,099	1,407	...	228	...	229,688	123,777	105,911	-26,490
Piedmont	298,376	188,469	101,054	2,225	2,856	1,460	761	323,189	161,934	161,255	-24,813
Pioneer	287,373	176,575	99,702	986	4,714	1,340	...	305,996	139,129	166,867	-18,623
Robinson	138,910	61,990	66,342	1,894	1,636	246	4,514	167,284	92,332	74,952	-28,374
Southern	214,694	85,194	126,067	2,748	...	486	...	257,486	128,723	128,763	-42,792
Southwest	174,233	78,521	85,707	1,124	2,815	338	1,599	210,444	87,780	122,664	-36,211
Trans-Texas	218,380	65,658	145,012	892	2,193	428	1,794	228,522	104,185	124,337	-10,142
West Coast	109,308	39,801	65,084	417	709	135	2,744	107,006	49,490	57,516	2,302
Wiggins	27,159	912	26,113	63	...	5	...	23,722	8,254	15,468	3,437
Wis. Central	144,691	55,283	85,643	3,149	...	290	...	191,635	87,396	104,239	-46,944
TOTALS	2,812,985	1,131,191	1,573,825	27,152	24,155	7,444	31,622	3,290,970	1,552,935	1,738,035	-477,985
					Helicopter	Mail Service					
Hel. Air Serv.	29,809	....	29,719	...	...	...	...	35,363	21,714	13,649	-5,554
Los Angeles	25,875	....	25,875	...	...	...	...	32,377	17,349	15,028	-6,502

* Figures cover local service segment (route 106) awarded MCA by CAB in the Parks Air Lines Investigation Case.

SUMMARY OF U. S. LOCAL SERVICE AIRLINE TRAFFIC FOR FEB., 1952

AIRLINES	REVENUE PASSENGERS	REVENUE PASSENGER MILES	AVAILABLE SEAT MILES	PASSENGER LOAD FACTOR	MAIL TON MILES	EXPRESS TON-MILES	FREIGHT TON-MILES	TOTAL TON-MILES REV. TRAFFIC	AVAILABLE TON-MILES FLOWN	% AVAILABLE TON-MILES USED	REVENUE PLANE-MILES	SCHEDULED MILES	% SCHEDULED MILES COMPLETED
All Amer.	9,656	1,359,000	4,989,000	27.25	4,702	9,602	...	147,340	570,187	25.84	237,578	256,126	88.87
Bonanza	2,473	633,000	1,599,000	39.57	530	179	1,136	62,193	176,849	35.17	73,078	74,073	99.05
Central	3,599	434,000	2,401,000	18.08	1,977	858	2,046	46,670	274,399	17.01	114,333	116,514	98.13
Empire	3,200	660,000	2,097,000	31.47	2,371	1,051	...	65,861	228,246	28.86	99,867	99,006	97.69
Frontier	7,881	2,071,000	7,487,000	27.66	8,007	5,165	26,139	247,352	597,312	41.41	356,683	358,646	98.32
Lake Cent.	1,910	315,000	1,910,000	16.49	1,218	4,129	...	34,389	217,629	15.80	95,070	103,008	90.44
MCA*	2,585	572,000	1,588,000	36.02	1,401	2,322	2,873	61,192	165,840	36.90	69,100	73,834	91.93
Mid-West	159	23,000	213,000	10.61	699	...	...	2,590	23,445	11.04	53,286	71,398	74.63
Ozark	3,707	606,000	4,743,000	12.78	2,407	2,504	...	62,687	467,670	13.40	189,721	218,022	85.14
Piedmont	13,086	3,054,000	7,351,000	41.55	5,434	4,945	9,585	312,437	840,132	37.19	350,055	354,720	97.30
Pioneer	12,754	3,312,000	7,638,000	44.95	9,863	3,095	16,102	361,853	736,920	49.10	307,050	308,277	99.06
Robinson	5,294	846,000	2,225,000	38.02	2,032	2,614	2,564	85,730	232,101	36.94	106,280	113,122	88.62
Southern	8,615	1,468,000	5,372,000	27.33	7,095	6,883	...	154,432	485,241	31.83	255,794	260,884	98.05
Southwest	8,638	1,657,000	3,851,000	43.03	6,651	3,235	16,680	192,835	440,090	43.82	183,371	191,007	94.89
Trans-Texas	5,392	1,413,000	4,734,000	31.71	4,934	2,515	5,989	155,268	473,442	32.79	225,449	215,394	98.45
West Coast	5,379	767,000	2,333,000	32.88	828	822	8,068	79,819	207,576	38.45	111,763	114,434	95.60
Wiggins	141	13,000	134,000	9.70	73	84	...	1,320	14,338	9.21	34,678	45,546	73.81
Wis. Cent.	7,775	1,164,000	3,168,000	36.74	6,666	8,986	...	126,016	362,098	34.80	150,874	162,798	91.81
TOTALS	102,644	20,367,000	63,833,000	31.91	66,888	59,989	91,182	2,199,964	6,513,515	33.77	3,014,030	3,136,809	94.26
						Helicopter	Mail Service						
HAS	...	....	....	...	2,322	...	...	2,322	5,122	45.33	26,373	26,890	98.08
Los Angeles	...	....	....	...	3,690	...	...	3,690	7,561	48.80	19,950	21,086	94.61

* Figures cover local service segment (route 106) awarded MCA by CAB in the Parks Air Lines Investigation Case.

People

ADMINISTRATIVE

Colin H. McIntosh has resigned as vice president-operations of All-American Airways effective June 15. McIntosh joined AAA in 1948. He is a veteran of more than 20 years in air transportation.

Walter G. Krist, formerly supervisor-production at American Airlines' Tulsa maintenance base, named assistant to **E. O. Schroeder,** assistant vice president-maintenance.

Collier

Herman J. Ruppel is now general auditor for Slick Airways. He will work closely with acting comptroller **Harvey Angermeir.**

C. N. Collier, former station manager for Continental Air Lines in Kansas City, has been appointed to the newly-created post of personnel and manuals manager of flight service.

OPERATIONS-MAINTENANCE

Arthur Ives and **Walter Burns** have been appointed station managers for The Flying Tiger Lines at Seattle and Portland, respectively. Ives transfers from Hartford while Burns moves from Chicago.

Alvin J. Markwardt is now supervisor of communications for American Airlines at Buffalo . . . **Stephen O. Nichols** became Buffalo chief communications operator.

Will G. Ostrum appointed office manager for the Dallas, Tex., general offices of Pioneer Air Lines.

Rita V. Copelman has become office manager of Colonial Airlines' general headquarters in New York.

George W. Blenn, Jr., has been appointed crew scheduling agent by All-American Airways. He succeeded **John V. Green,** resigned.

L. J. Eichner, CAP's assistant cargo sales manager, named chairman of the Airmail Committee of the Cargo Advisory Board.

TRAFFIC & SALES

Harold J. Laird is now sales promotion manager and **Stanley G. Mortimer, Jr.,** advertising manager for Pan American World Airways. Laird has been assistant advertising manager for four years and was display manager for American Airlines for five years before joining PAA. Mortimer left Batten, Barton, Durstin and Osborne to join the company.

Al Wagstaff, for the past three years Bermuda station manager for Colonial Airlines, has joined the sales staff of Philippines Air Lines. He becomes assistant district sales manager for P. A. L. in Japan, with headquarters in Tokyo. **Jack B. Shaver** continues as district sales manager for the airline in Japan.

Crowe

Kenneth T. MacKenzie has been named by Slick Airways to replace **Thomas Holt** as acting sales and service manager . . . **William K. Fowler** is Slick's new Dayton, Ohio, district sales manager succeeding **J. Walter Greason,** resigned.

Robert Cuneo Crowe appointed to the new position of airport sales manager at Miami International Airport by Pan American World Airways.

Frank Corcoran has been appointed manager of KLM Royal Dutch Airlines, new branch sales and ticket office in the Equitable Building, 120 Broadway, New York City.

Charles W. Tierney has been appointed general sales manager for Resort Airlines with headquarters at the airline's new Rockefeller Center offices in New York City.

J. Merrick Fowler has been transferred by American Airlines from the New York sales staff to Washington, D. C. as a sales representative. **Carter J. Lunsford** has been named sales representative for the airline in Hartford.

B. H. "Brad" Smith, former cargo tariff manager for Trans World Airlines, has joined Air Cargo, Inc., as director-tariffs and publications. Smith succeeds J. A. Cosby, resigned.

PUBLIC RELATIONS

Robert "Red" Sutherland and **William Widder** have joined American Airlines' public relations department in New York as manager-special services and feature writer, respectively.

William B. Briggs, 20-year aviation veteran, has become public relations officer for California Central Airways with headquarters in Washington, D. C.

J. H. Crump has been named public relations officer for Canadian Pacific Airlines. Crump, formerly assistant supervisor of advertising and sales promotion for the airline, succeeded **E. C. MacPherson,** resigned.

G. E. Masters is now director of publicity for Northwest Airlines. Formerly assistant director, Masters replaced **J. A. Ferris,** resigned.

Robert J. Reed has been named editor of *Aviation Age* magazine, succeeding **Richard Stockwell** who has resigned to join Monsanto Chemical Co. in St. Louis.

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Airport News Digest

Tightening Up: Under a new amendment to Section 550.3 (a) of the regulations under which the Federal Airport Program is administered, Federal-aid grants are limited only to such projects deemed reasonably necessary to provide a needed civil airport facility or structure.

Amendment is worded to prevent Federal funds being used for construction, alteration, or repair of a facility used or intended to be used for a non-airport purpose. In other words, restaurants, golf driving ranges, and other such non-aviation projects, even though they may offer badly needed potential revenues to airport management, can no longer qualify for Federal funds.

Close Squeak: Undismayed by the impending completion of the Greater Fort Worth International Airport, the voters of Dallas approved a $1,500,000 bond issue for expansion and improvement of their municipal airport, Love Field. But it was uncomfortably close—15,809 votes for the bonds, and 15,757 against.

TERMINAL BUILDINGS, AREAS

• **After being held up** about eight months for lack of structural steel, construction has been resumed on the new passenger terminal and Federal agencies building at Jefferson County Airport, Beaumont, Texas.

• **Letting of a contract** for a new administration building at Mahlon Sweet Airport, has been approved by the city council at Eugene, Oregon.

• **Enlargement of the airport terminal** building at Amarillo, Tex., is being planned by architects engaged by the city.

• **A bronze bust** of Francis S. Murphy, publisher of the Hartford *Times* and chairman of the Connecticut Aeronautics Commission, will be installed in the new administration building at Bradley Field, Windsor Locks.

• **Installation of escalators** and other finishing touches on the terminal building at Greater Fort Worth International Airport has begun under a $415,000 contract.

• **An architect has been hired** to draft plans for the proposed $200,000 terminal building at Peterson Field, Colorado Springs, Colo.

• **All bids on proposed** new terminal at Atchison, Kan., municipal airport were in excess of available funds and were rejected. A readvertising was thought possible.

RUNWAYS, OTHER PAVING

• **Work is expected to start** in mid-June on repairing and resealing of runways and taxiways at Santa Fe (N. M.) Municipal.

• **Paving of a 4,600-foot runway** and connecting taxiway is well under way at the Tri-State Airport, Huntington, W. Va.

• **CAA has been asked** to provide $683,204 in Federal funds toward construction and lighting of a new N/S instrument runway and connecting taxiways at Salt Lake City Municipal. City has pledged $389,911 and Utah National Guard is expected to put up $597,335.

• **Massachusetts Aeronautics Commission** has endorsed a preferential runway plan for use at Logan International Airport, Boston.

• **CAA recently released $75,000** of Federal-aid airport funds for use in improving the NE/SW runway at Weir Cook Municipal at Indianapolis. Money had been impounded after Airport Use Panel recommended that Air National Guard flying at nearby Stout Field be shifted to Weir Cook, and the city had failed to provide space for them at the municipal field.

HANGARS

• **Plans have been announced** for construction of a $100,000 hangar at Lost Nation Airport, Willoughby, Ohio.

• **Construction of 32 hangars** to increase private flying activity at Springfield (Ohio) Municipal has been approved. Cost of $74,000 will be financed through 15-year revenue bonds at 3% interest.

• **Initial legislation to permit** the city to go ahead with plans for construction of a $4,000,000 privately financed hangar at Cleveland Hopkins Municipal Airport was approved recently.

LIGHTING

• **Installation of a new** runway lighting system at Greensboro-High Point (N. C.) Airport is in progress.

2-0-2 Engine Overhaul

Pioneer Air Lines and Dallas Airmotive have concluded a $200,000 contract for the overhaul of about 50 Pratt & Whitney R-2800 CA-18 engines. The engines are part of Pioneer's new Martin 2-0-2 fleet.

The contract will run for one year, Henry I. McGee, Dallas Airmotive president, stated.

Lighting System in S. A.

Pan American-Grace Airways recently inaugurated the first major approach lighting system in South America at Limatambo, Peru. Panagra made the initial inspection flight in one of its new DC-6B's, during a ceremony attended by high officials of the Peruvian government.

1951 Airline Salaries

Following are 1951 airline salaries as reported to CAB.

Trunk Carriers

Pan American-Grace Airways, Inc.

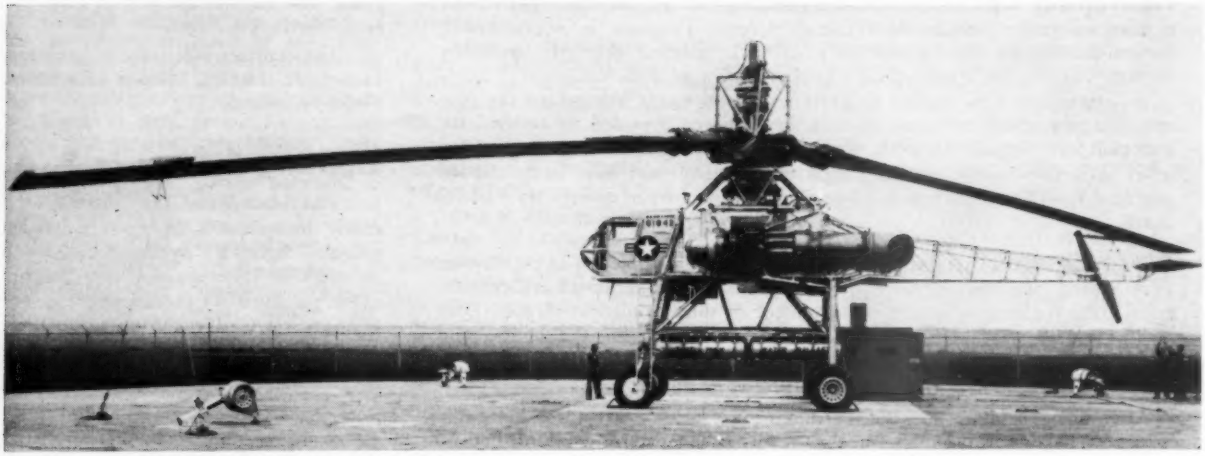
Andrew B. Shea, pres. and dir., no salary; **Howard L. Clark,** v.p. and dir., no salary; **E. Balluder,** v.p. and dir., no salary; **Douglas Campbell,** v.p. and general manager, $22,500 salary, $3,500 bonus and indirect compensation; **T. J. Kirkland,** v.p., $19,500 salary, $1,800 bonus and indir.; **J. T. Shannon,** v.p., $18,000 salary (up $500), $1,500 bonus and indir.; **K. A. Lawder,** v.p. and comptroller, $17,750 salary (up $9,982), $1,500 bonus and indir.; **W. F. Cogswell,** secy., no salary; **J. S. Woodbridge,** treas., no salary; **H. Preston Morris,** asst. secy., no salary; **A. J. Phelan,** asst. comptroller, $9,562.50 salary (up $312.50), $550 bonus and indir.; **E. E. Spencer,** asst, treas., $9,458.53 salary (up $208.53), $500 bonus and indir.; **W. F. Lewis,** asst. treas., $10,000 salary (up $521), $550 bonus and indir.

All-Cargo Carriers

Slick Airways, Inc.

Earl F. Slick, chairman of board, no salary; **Lewis J. Moorman, Jr.,** chairman, executive committee and dir., no salary; **Thomas L. Grace,** pres. and dir., $16,124.99 salary (up $3,804.94), $806.25 bonus and indirect compensation; **William E. Hollan,** exec. v.p., $14,416.69 salary (up $4,652.54), $720.83 bonus and indir.; **Joseph F. Grant,** v.p., secy. and dir., $12,708.39 (up $2,062.21), $635.42 bonus and indir.; **David R. Stewart,** v.p., treas., and dir., $12,708.39 salary (up $2,062.21), $635.42 bonus and indir.; **Henry P. Huff, Jr.,** v.p., $12,358.39 salary, $617.92 bonus and indir.; **Matthew C. Wilkin,** v.p., $12,358.39 salary, $617.92 bonus and indir.; **John W. Walbert,** asst. secy., $6,622.50 salary (up $1,271.49), $331.13 bonus and indir.; **William E. Miller,** asst. secy., no salary.

Production Spotlight



Hughes Aircraft Co.'s XH-17 helicopter, the first model of which was partially destroyed in a crash, is now ready to undergo a series of tie-down tests before making its first flight in several months. Powered by two modified General Electric jets supplying gas-pressure through ducts leading up to the rotor shaft and out to the tips of the long blades, the XH-17 is designed for short-range hauling of heavy military equipment.

ALCOA Reveals Heavy Press Progress

Importance of the USAF's heavy press program to the aircraft industry was emphasized in a display of the operations of a "liberated" German press now located at Aluminum Company of America's forging works at Cleveland. The 15,000 ton forging press, built by Schloemann and installed by Alcoa at a cost of $6.2 million, has turned out about 20 different types of aircraft forgings since it started producing January 1.

In all, Alcoa's Cleveland forge plant is turning out about four million pounds of forgings a month, about 85% of them for U. S. aircraft manufacturers. A smaller U. S.-built press with an 8,000 ton capacity is scheduled to be installed there in about a year.

These two presses, three smaller ones, and various other pieces of equipment now in place or slated for delivery within the next 12 months will boost Alcoa's forging capacity beyond five million pounds a month. And sometime beyond that date two of the largest presses now on order by the USAF will also be installed at Cleveland. These include a 35,000 and 50,000 tonner.

The 15,000 ton unit now in use at Cleveland is a twin to another one being operated by Bohn Aluminum at Adrian, Mich., but that one (another German press) is being used primarily for experimental work. The Adrian facility, however, is also slated to be used for mass production of aircraft forgings and extrusions, even though some research will be continued there. The largest press in this country at present is an 18,000 tonner, owned by the Air Force, and operated by Wyman-Gordon at Worcester, Massachusetts.

Under the Air Force's heavy press program, however, the years 1954 and 1955 will see the deliveries of several 25,000 ton, 35,000 ton, and 50,000 ton forging presses as well as a number of smaller forging and extrusion presses. These are to be placed at facilities all across the country so that aircraft firms on both coasts and in the Kansas-Texas-Oklahoma area will have forging suppliers nearby.

Strike Vote at NAA

There appears to be only one dark spot on the aircraft labor horizon at present now that General Electric's J-47 jet engine plant at Lockland, Ohio, and the IAM and UAW have agreed on "indefinite" extensions of the present contracts while wage and union shop talks continue.

CIO-Autoworkers at North American Aviation plants in Los Angeles and Columbus have voted to strike unless NAA boosts its present offer of a nickel an hour.

In other aircraft labor news, the UAW, which represents production workers at Bell Aircraft's main plant at Buffalo, has won bargaining rights at Bell's helicopter plant at Fort Worth on the third try. In the first balloting, UAW topped the AFL-Machinists but did not win a majority and a runoff was ordered by NLRB. The runoff resulted in a victory for the IAM but the Autoworkers charged the company influenced the balloting and a new election was held. UAW was the victor 327-250.

More C-123's for USAF

Rep. Alvin E. O'Konski (R. Wis.) revealed that the Air Force is planning to order 250 more Chase C-123 assault transports while blasting Kaiser-Frazer Corp., which is to build the C-123's, for not turning out a single such plane even though K-F has had the contract for a year.

K-F, of course, has spent that year tooling up for production of the plane at Willow Run, and was not expected to have produced its first C-123 as yet. Henry J. Kaiser replied that O'Konski's charges were "malicious and unfounded" and that the Wisconsin congressman was "grossly misinformed." Kaiser said he would welcome a congressional inquiry into the case.

Vickers Heads Sperry

H. F. Vickers has been elected president of the Sperry Corp., succeeding Thomas A. Morgan.

Editorial

(*Continued from page 10*)

same time. It is obvious that the sole distinction between the regular and the tourist services is the space per passenger. It is questionable whether the addition of a fifth vertical row of seats was wise, or whether a slightly higher fare and added comfort of 2 and 2 seating would not be preferable for truly tourist services. A tourist presumably is traveling for pleasure. He wants bargains. But it isn't at all certain that he welcomes a cheapened service as well as a cheap one.

Our comments are not to be construed as the final judgment of this summer's tourist service, but we sat in each horizontal seat position for various lengths of time—and not out of choice, either. Much as we want air travel to serve an ever-widening patronage at lowest economic fares, it is difficult to conceive that the present high-density seating will meet with universal appeal despite the substantial saving. We felt even before we tried the service that the trans-Atlantic carriers would be benefitting themselves over the long run by lowering the standard fare to provide the minimum comforts which an airplane can offer. This would mean a fare perhaps half way between the present tourist fare and the regular fare. Then add a few truly coach high-density flights for students and others who are able to take discomforts in stride.

We think the trans-Atlantic tourist service will require a complete re-examination before the summer season is over, not only in the light of higher operating costs but in the 3 and 2 seating arrangements. There is a minimum comfort factor facing the airlines or they may send the typical tourist back to the steamship.

. . . Wayne W. Parrish

Nine Want No Discount

Nine domestic airlines have again asked the CAB for elimination of the industry 5% round-trip discount. Their original proposal was blocked by a 3-2 CAB vote.

The new tariff provision was filed for American, Braniff, Capital, Continental, Delta, Eastern, TWA, United and Western. Effective date would be June 23, except for Capital and United, who asked for an advance in the date. The other carriers will make similar requests if these two are granted.

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There's more! Because of the popularity of the new Government Procurement and Production section, which appeared in the Fall-Winter Edition of the Directory, it is being continued and enhanced. Here are listings of government agencies with names of proper officials to contact for filing bids . . . from the Air Force to Production Administration and their regional offices. In addition, the Directory's FOREIGN SECTION has been separated for faster reference.

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Thomas R. Pierpont, service manager at Piasecki Helicopter Corp., was elected president of the American Helicopter Society at the recent Honors Night Dinner of the society's Eighth Annual Forum. Six regional vice presidents were also elected at the same time.

Financial News

National Airlines' net earnings in quarter ended Mar. 31 were $1,322,617 against $1,424,674 for same 1951 quarter. For nine months ended Mar. 31, net income was $2,006,661 compared with $2,079,132 for same 1951 period.

Northwest Airlines paid an extra $2 million in addition to regular $1 million payment made Apr. 1 on its bank loans. These loans now total $10,140,363 compared with $21,000,000 two years ago. The $2 million came from sale of airplanes. NWA has also obtained a revision of its bank credit agreement, reducing quarterly payments from $1 million to $385,000.

Piedmont Airlines reports 1951 net profit of $144,562 on gross revenues of $3,948,760 and operating expenses of $3,649,810. Income increased 20% over preceding year, while expenses were up 18%.

Eastern Air Lines had first quarter net profit of $963,886 against $2,262,719 net in same 1951 quarter. Decrease in earnings was attributed to increased operating costs, closing of Newark Airport, and heavy non-recurring expenses resulting from integration of Lockheed L-1049C's and Martin 4-0-4's into its fleet. Profit from sale of DC-3's during the quarter is not included in net earnings.

Mid-Continent Airlines reported net loss after taxes of $20,784 for March, bringing first quarter net loss to $82,544, compared with $36,328 net loss in same 1951 quarter, exclusive of non-recurring expense credits.

Price Trends Stabilize

Present traffic is excellent, and while expenses continue to increase, the trend is flattening out, William J. Hogan, vice president and treasurer of American Airlines, told the company's annual stockholders meeting. Second quarter profits will depend largely on termination of the oil strike, he said.

UAL Traffic, Taxes Up

A gain of 20% to 30% in traffic volume during 1952 is expected by United Air Lines, but earnings are not likely to reach peak levels of other years because of taxes and higher costs, W. A. Patterson, UAL president, said recently. First quarter traffic was up about 12½%, he stated.

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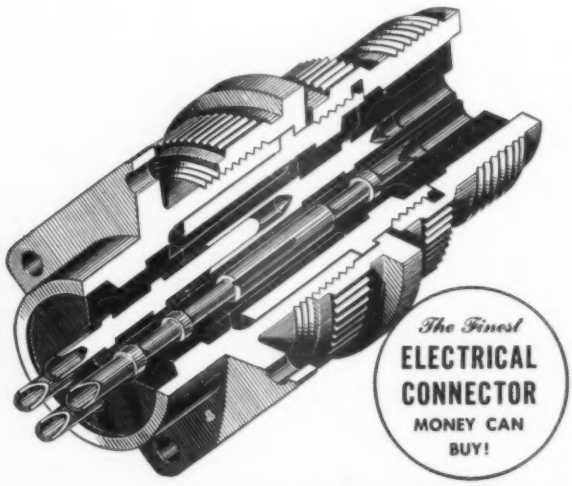

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Just One More. This may sound vain, but it really isn't. The greatest single source of wonderment to me is the things that continually happen to me. I get photographed and honored all the time as though I were a celebrity, whereas the bald truth is that you have to go a long way before you could find a more unlovely, more unphotogenic, plump bit of brassy impertinence than my stubby five-foot-six with the constantly encroaching double chins.

I just keep on doing things I like to do, but a lot of the photographs build me up in ways I don't deserve and actually don't aspire to. Since the first of the year I've been photographed or honored in one way or another in such places as Havana, Caracas, Ada, Okla., Las Vegas, Santa Fe, Paris, Jamaica, Fort Worth, and so on. I take it all in stride and with the bewilderment of a midwesterner who thinks life and the world at large are simply wonderful.

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Rod and Reeler. What I mean is this. Look at the photo of that seven-foot-two-inch sailfish being presented to me. I caught this off Miami with **Walt Sternberg**, National Airlines' vice president, and **John Dey**, the congenial advertising man with the Grant Agency in Miami. Quite a fish. A 49-pounder. When the Blue Marlin docked after being out for a day, I got photographed with my fish. Then when National got the fish mounted it was presented to me in Washington by **Gil Paul**, National's Washington manager. A local newspaper printed the photo.

WITH ALL THE FORMALITY of a presidential inauguration, Gilbert Paul, National's district sales manager for Washington, presents a sailfish to Ye Editor.

So all at once I'm a sportsman, a trophy winner, a big deep sea fisherman, a lover of the great outdoors. In short, a veteran. But let's face it. The only time I had ever in all my life been deep sea fishing was for about three hours some years ago. I had never even seen a sailfish before. My primary association with fish has been to watch them in those illuminated glass containers at fancy bars.

Back Into It. I'll even confess that when **Walt Sternberg** wanted to take me fishing I was something less than enthusiastic. Bouncing around all day in a boat waiting for some damn fool fish to bite wasn't my idea of pleasure. But I tried to be polite and went along, actually hoping that I wouldn't catch anything because I didn't know what to do in case one did bite. Just about the time when I was going to suggest subtly that we go back to Miami and have a cool drink, this sailfish bit on the line closest to me. Everybody yelled for me to take hold. Scared to death, I did take hold and to this day the only thing I can figure out that happened was that the skipper of the Blue Marlin helped out a lot by backing into the fish.

So now the fish takes up a large segment of my office wall, duly graced with a brass plate describing my sterling achievement, and I am a sportsman. At least the photo would indicate this. But let's face it—I'm as unlikely a fisherman as ever existed.

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Ah, Virginia! Now look at that photo of me and **Virginia Mayo**. Lovely, isn't she? I'm really up in this world. What happened was that I was in Los Angeles to speak to the Advertising Club and this movie star Mayo was sent to the club to give a three-minute talk on something or other about movies getting better. Poor gal, she had to sit through my whole speech and she was nice enough to compliment me on it afterwards. Of course we had to have the inevitable pictures taken so here is my stubby frame standing as close as I thought I could reasonably get to a famous movie star.

Just a brief moment of glory and

SID STEWART (Chicago & Southern), W.W.P., and C. E. Woolman (Delta Air Lines) disguise themselves as retired millionaires at play in Jamaica.

THE TALL GENT at the extreme left is T. C. Drinkwater, president of Western Air Lines, who is obviously too tall for movie star Virginia Mayo which leaves the road clear.

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then Virginia went out of my life. But if I hadn't given you peasants the background you'd probably think I really rated that Hollywood stuff, wouldn't you. Or would you?

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Idle Rich. Then look at those three guys in the sports outfits. Unquestionationably they're three milionaires on a two-months vacation. The smug guy in the middle is me, of course, but the other two gents have a right to look handsome. Airline presidents always look handseme, although not quite as much so as pilots. Now if I didn't give you some background you'd think the three of us were wasting away months at some luxurious beach. Idle rich, so to speak.

But a vacation to an airline president means somewhere between one and two days, usually on a weekend. This photo was taken at **Abe Issa's** Tower Isle on the north coast of Jamaica and we were there exactly a day and a half. A hit-and-run visit to a popular resort.

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Oklahoma Navy. I'm sorry that I don't have a photo taken by the newspaper at Ada, Oklahoma, some weeks back, because I got a very pleasant surprise when I finally flew on Central Airlines on its Tulsa-Amarillo route after two previously frustrated attempts. As we pulled into the airport at Ada a delegation came out and got me off the plane and took me into the terminal (while one engine kept running and the other passengers waited) and I was presented by the mayor with a certificate signed by **Governor Murray** of Oklahoma making me a commodore in the Oklahoma Navy.

Pleased? Certainly, who wouldn't be? But for the life of me I can't figure out why I rate so much attention. It's just nice that there are such good folks as **Fred Boston**, a Central director, who would go to the trouble of arranging this for me. I've got a warm spot in my heart for Oklahoma because a previous governor made me an Oklahoma Colonel and I've been made a brave of the Comanche Indian tribe and a chief in the Kiowa tribe. Those folks in Ada can be duly advised that my certificate as a commodore in the Oklahoma Navy is nicely framed and hanging in the office.

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Where's The Fortune? Down in Caracas, Venezuela, recently, I got a lot of attention, which embarrassed me a little because I ended up with top newspaper billing when the attention should have gone to **Sid Stewart** who was giving a big cocktail party on behalf of Chicago & Southern. It all came about by a very casual remark when a newspaper reporter got me aside at the cocktail party while a photographer snapped some pictures and the reporter asked me a perfectly normal question about how I got started in the aviation magazine business.

Feeling no special pain at that point in the party, I said, half facetiously, "I got fired from the job I had." That was enough for the reporter. Next morning appeared a story with a three-column headline about the man who got fired and built up a fortune pub-

They Write Their Own Timetables

Corporate use of single-engine planes is spreading at a rate which gives emphatic proof of their utility. An estimated 7,500 aircraft of this type comprised this "business fleet" in 1951, an increase of some 25 per cent since 1948.

Such craft not only bring points off main airline routes within range of fast air travel, but lessen businessmen's dependence on hard-and-fast timetables. More and more of them are writing their own, and saving countless hours of time.

As builder of the engines powering the greater number of these planes, Continental Motors is gratified, naturally, both at the proof of utility which such acceptance reflects, and at users' clear preference for planes with Continental power. Needless to say, it stands committed to the policies which have fostered this preference.

Continental will continue its emphasis on aggressive engineering, its adherence to highest standards of material and workmanship, and far from least important, on the maintenance of parts and service wherever businessmen—or anyone else—may fly.

CONTINENTAL MOTORS · Powerful as the Nation · AMERICA'S STANDARD · 1902 · 50th · 1952

Continental Motors Corporation
Aircraft Engine Division
MUSKEGON, MICHIGAN

lishing his own magazine. It was quite a romantic piece, Latin American style, but I wish that reporter would help me find that fortune he wrote about so descriptively. One part of the story was completely correct—I had been fired from my job and that's how and why I started this magazine.

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Boomerang. All of this reminds me of that interview I once gave to a newspaper in Lima, Peru, in which I complained about customs red tape at the airport. The next morning I arrived at the airport to have my baggage examined to leave the country and found the customs inspector reading the interview and duly noting that the guy in the newspaper photo strangely resembled the guy arriving to have his bags examined. Just another of life's embarrassing moments.

Minot Again. But what I really wanted to report on this issue was my second reference to that unlikely town of Minot, North Dakota. I had said it was difficult to get to, because it's a stub end of Mid-Continent's route. Well, I got a letter from **O. J. Wardwell**, station agent for MCA at Huron, S. D. who enclosed a timetable and a broad hint that he thought Minot was very easy to get to. **Leslie Rush**, radio operator for Western Air Lines at Huron, also wrote and said WAL would be very happy to sell me a ticket from Twin Cities to Huron and he would see to it that I got confirmed space on MCA to Minot.

Then **Hal Grayson**, a grand guy and a very alert publicity director (for MCA), sent me all sorts of routings out of Washington and said I can stop wondering about snowbanks at Minot and put in another plug for the big oil boom up in that area. Okey, guys, I'm beginning to get the point, that you think MCA service to Minot is very good. But what in the name of North Dakota does one do when he gets to Minot, and who pays for the ticket to go all the way up there?

✣ ✣ ✣

Bound to Happen. Also I wanted to report that after taking a crack at gambling in Las Vegas a few issues ago, it was bound to happen. I found myself back there (for the atom bomb test) just after that issue arrived, so I had to do a lot of squirming around about my gambling comment. I was there about four days and took in most of the entertainment. For the money Las Vegas offers the best food and best entertainment anywhere in the world. Not only that, but I made a net profit off those one-armed bandits, those slot machines which I despise with a vengeance. Sure, I play 'em. But can't I hate them at the same time, too? (That's known as editorial logic!)

Next issue I'm going to take you motoring in southern France in a small French car. Just got back.

the bulletin board

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Mark E. Bradley
U. S. Air Force
at Cleveland, Ohio
September 5, 1948

R. H. "Dick" Magee (QB)
Standard Register Co.
at Cleveland, Ohio
September 6, 1948

T. A. "Tom" Aspell (QB)
The Jam Handy Corp.
at Cleveland, Ohio
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T. S. "Tom" Blair (QB)
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at Cleveland, Ohio
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Fred K. Dick
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Peninsular Airways
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September 6, 1948

Tekla Irene Noricki
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September 7, 1948

J. E. "Pin" Batson (QB)
Graham-Hoeme Plow, Inc.
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September 7, 1948

Mary Cantey
United Air Lines
Cleveland-Denver
September 7, 1948

Lillian Stephenson
United Air Lines
Cleveland-Denver
September 7, 1948

Mary Cantey
United Air Lines
Cleveland-Denver
September 7, 1948

W. S. "Bill" Moore (QB)
Civil Aeronautics Admin.
at Denver, Colorado
September 7, 1948

C. J. "Chuck" Bondley
U. S. Air Force
Colorado Springs, Col.
September 8, 1948

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BOEDY'S ALBUM

W. P. "Bill" Brett
U. S. Air Force
Colorado Spring, Col.,
September 8, 1948

Ira V. Mathews
U. S. Air Force
Colorado Springs
September 8, 1948

P. D. "Phil" Keif
Plains Airways
at Encampment, Wyo.
September 9, 1948

Daisy Richter
Paul E. Richter, Jr.
at Encampment, Wyo.
September 10, 1948

Paul E. Richter
Ruth Richter
at Encampment, Wyo.
September 10, 1948

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Glenn L. Martin Co.
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T. H. "Tom" Corpe (QB)
at A Bar A Ranch
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R. E. "Red" Wertz, Jr.
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Monarch Air Lines
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Around the World

Britain to Push Independents

New encouragement for independent British air carriers will be government policy in Great Britain, especially in regard to the operation of coach services with short-haul aircraft, it has been announced by Alan Lennox Boyd, new Minister for Transport and Civil Aviation.

Present BOAC and BEA routes will be affected by such new schedules only insofar as those nationalized carriers will be prevented from using aircraft purely for charter work.

African Air/Rail Split Urged

South African Airways has suffered a serious loss of initiative from the cumbersome control exercised by South African Railways, according to a petition recently filed with the South African government.

The petition, which asks that the airline be divorced from the railroad and reconstituted as a public corporation, was filed by the Commercial Aviation Association, the Aero Club, and the aviation division of the chamber of commerce.

Tourist Fares for Europe

No changes will be made in tourist fares for the season beginning this fall, except for a 5% increase between Europe and the Far East and Africa, while within Europe itself tourist service has been approved for inauguration in the spring of 1953. These were the main results of the ATA traffic conference recently concluded in Buenos Aires.

European tourist service on daytime flights will involve cuts of from 20% to 25% in first class fares; night services will be as much as 13% lower than these figures.

•

TRANSPORT

Third Bell 47D-1 helicopter for Sabena Belgian Airlines, recently ordered for use in its helicopter mail service in Belgium, is expected to be shipped to Brussels within a week. Slick Airways will carry the ship from Bell's Fort Worth factory to New York International Airport, from which it will be flown to Belgium on a Sabena all-cargo DC-4 flight.

Australian National Airlines' acting general manager H. F. Walsh has announced that he will resign in the near future to resume private practice of law. He has been with ANA for 10 years. It is believed that Captain Ivan Holyman, chairman of the board, will resume responsibility for general management.

Aquila Airways has postponed indefinitely the inauguration of its Marseilles-Southampton service.

El Al Israel Airlines has been granted the right to take on passengers in Rome bound for New York, Athens, and Vienna, under an agreement concluded between Israel and Italy. El Al had formerly been permitted to pick up only passengers bound for Tel Aviv.

Philippine Air Lines will add a second weekly schedule between Manila and London following the delivery, within the next two weeks, of two new DC-6B's. Number of berths in the line's four DC-6's is being reduced from 26 to eight as the planes reach major overhaul, as a result of the high load factors on the line's international routes.

Brazilian domestic airlines will be granted subsidies by the Brazilian government, over and above payments for carrying the mail, in action that is expected within the next 30 days. International carriers in that country have heretofore been receiving such payments, but domestic lines have not. Subsidies are expected to help offset losses from steep drops in traffic (20% to 30%) and the effects of a price war, as well as rising costs.

Swissair is reportedly ready to expand its fleet of four-engine equipment, and may increase its order for Douglas DC-6B's. It has already received two of the six it has on order.

Ansett Airways in Australia has purchased two double-deck Sandringham flying boats and several Catalinas from Barrier Reef Airways. Ansett will take over the services formerly operated by the latter company, and will operate an additional route from Brisbane to Cairns.

Iberia, the Spanish airline, has ordered four Bristol 170 transports.

South African Airways has raised pilot pay, retroactive to last July 1. Increases range from $525 a month for senior captains to $675 for first officers. Under the new rates, senior captains will receive a total of some $6,885.

Brazilian airlines may soon be hit by a spare parts shortage, since the Bank of Brazil has issued no licenses for import of spares during the last several months, as a result of the dollar shortage.

Airwork, a leading British charter company, has sent a Hermes IV four-engine transport to Khartoum equipped with backward-facing seats, which will be tested there under tropical conditions.

•

MANUFACTURING

Convertiplane development contract has been placed by the British Ministry of Supply with an unspecified company.

Handley Page new "ultra high level" jet bomber is reportedly being readied for flight, with what is believed to be an Armstrong Siddeley Sapphire as the power plant.

English Electric Company has a new delta-wing jet bomber in an advanced stage of development, it is reported. English Electric manufactures the Canberra.

News At Deadline

40 Transports to Start In Last Quarter of '52

Forty new transports, to be started in the fourth quarter of 1952, are included in the new C-7 Quarterly Aircraft Production Program just approved by the Air Coordinating Committee and recommended to DPA. Thirty of the planes will go to domestic lines, the rest to foreign carriers. All are under firm contract.

From July, 1952, through December, 1954, a total of 424 commercial transports will be built and delivered, according to the ACC program.

Big Doman 'Copter on Commercial Market

Second transport helicopter to enter the commercial market will be Doman Helicopters' LZ-5, a seven-seat version of the Army's YH-31.

Glidden S. Doman, company president, said his firm would be able to accept commercial orders because its output schedule has been incorporated in CAA's production schedule for civil aircraft. This will insure the company enough NPA-controlled materials for commercial production.

Like the military YH-31, the LZ-5 will be powered by a 400 horsepower Lycoming engine. Only other transport helicopter now commercially available in the U. S. is the Sikorsky S-55, seating from 10 to 12.

User Charges Weighed By Transport Group

Directors of the Transportation Association of America have received from their National Cooperative Project an overall transportation program which, if adopted by TAA, will be presented to Congress as recommended legislation. The project represents four years' work.

Of particular interest to air transport are recommendations on user charges and integration, both of which represent victories for the airline viewpoint.

Major aviation recommendations are:

• **Although government policy** should be that all users of domestic government-owned transport facilities shall ultimately pay charges, in the case of airlines attention shall first be given to placing them on a self-sustaining basis. CAB shall report to Congress every two years on the extent to which the industry, in whole or in part, has reached a state of maturity which makes is possible for it to stand on its own feet.

• **Airport users** should pay their fair share of cost of needed facilities, but should not be required to pay for "excess" facilities which cities may construct.

• **Air contract carriers** must have CAB permits for interstate operations. They shall be subject to the same kind of economic regulation as contract motor and water carriers, and contract motor, water, and air carriers shall be required to file, adhere to, and make public the rates they actually charge.

• **There should be no change** in the Civil Aeronautics Act to make integration possible (the combination of two or more different forms of transport under single management or control). This was in contrast to past views of the railroads.

• **There should be no change** in the Act to give CAB control over airline securities.

These positions were reached by a Policy Administration Board, which considered views of eight panels—air transport, rail, water, pipe line, highway, freight forwarder, user, and investor. Before deciding whether to adopt the program, TAA will ask thousands of organizations for their comments.

TWA Super Connies OK'D

Certification flight tests have been completed at Burbank, Cal., on TWA's new Lockheed L-1049 Super Constellations and the aircraft have received certificates as approved passenger carriers. Basic certification was completed several months ago on Eastern Air Lines' first plane, but additional testing was required on TWA's model because of more powerful engines, and changes in fuel tanks and electronic equipment. The TWA version will have 71 seats.

Panagra Buys 2 More DC-6B's

Pan American-Grace Airways has ordered two more Douglas DC-6B's. The new planes will be delivered in February and March of 1954.

Convair 340 Price Up

A price rise put into effect last week raises the base price of Convair 340's from $535,000 to $572,000. Consolidated Vultee explained that the increase was brought on by higher costs.

Price Controls Off

Price controls will come off sales of used aircraft on June 10, as a result of Amendment 19 to the Office of Price Stabilization's General Over-riding Regulation 9.

OPS officials said that the action was taken because used planes must be kept in the same condition as new craft, and price techniques applicable to other used machines are not easily adaptable.

Reeves Resigns Los Angeles Airport Post

Resignation of J. W. Reeves, Jr., as general manager of the Los Angeles Department of Airports, has been accepted by that city's airport commission. Immediate naming of a successor is not expected, since Reeves' resignation does not become effective until July 15.

Personal reasons were cited as the cause of Reeves' leaving the post, which he has held for two years. His future plans were not announced.

No Mexican Interchange

Possibility of upsetting future bilateral negotiations with the Mexican government led CAB last week to deny a Chicago-Mexico City interchange proposal of Chicago and Southern Air Lines and Pan American World Airways. Board voted 4-1 against the operation with Member Josh Lee dissenting.

Service was to be performed with Lockheed Constellation aircraft between Chicago, St. Louis, Houston and Mexico City with Houston as interchange point.

Link May Merge

Several corporate mergers are under consideration at Link Aviation, according to E. Allan Williford, vice president and general manager. No decision on them, however, is expected in the immediate future. With over $55 million in backlog, Link has reportedly increased its net worth 50% since 1950.

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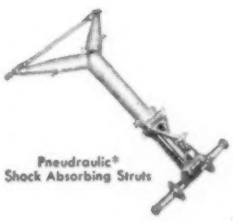

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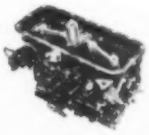

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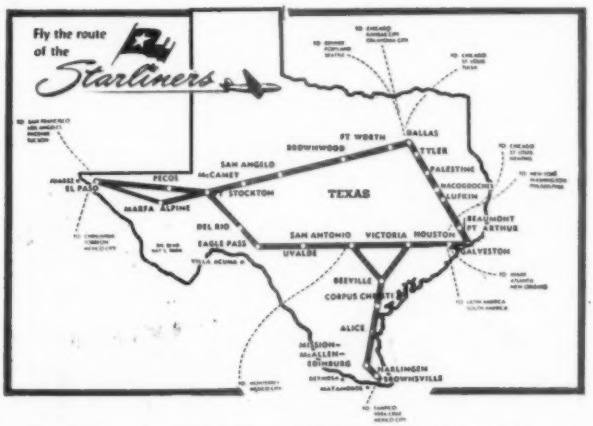

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